E 3510-22-P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[RTID 0648- XB948]

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Chevron Point Orient Wharf Removal

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice; proposed incidental harassment authorizations; request for comments on proposed authorizations and possible renewal.

SUMMARY: NMFS has received a request from Chevron Products Company (Chevron) for authorization to take marine mammals incidental to 2 years activity of vibratory pile removal associated with the Point Orient Wharf Removal in San Francisco Bay, California (CA). Pursuant to the Marine Mammal Protection Act (MMPA), NMFS is requesting comments on its proposal to issue two consecutive one-year incidental harassment authorizations (IHA) to incidentally take marine mammals during the specified activities. NMFS is also requesting comments on a possible one-time, one-year renewal that could be issued under certain circumstances and if all requirements are met, as described in **Request for Public Comments** at the end of this notice. NMFS will consider public comments prior to making any final decision on the issuance of the requested MMPA authorizations and agency responses will be summarized in the final notice of our decision.

DATES: Comments and information must be received no later than [*INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER*].

ADDRESSES: Comments should be addressed to Jolie Harrison, Chief, Permits and Conservation Division, Office of Protected Resources, National Marine Fisheries Service. Written comments should be submitted via email to *ITP.taylor@noaa.gov*.

Instructions: NMFS is not responsible for comments sent by any other method, to any other address or individual, or received after the end of the comment period. Comments, including all attachments, must not exceed a 25-megabyte file size. All comments received are a part of the public record and will generally be posted online at *www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act* without change. All personal identifying information (*e.g.*, name, address) voluntarily submitted by the commenter may be publicly accessible. Do not submit confidential business information or otherwise sensitive or protected information.

FOR FURTHER INFORMATION CONTACT: Jessica Taylor, Office of Protected Resources, NMFS, (301) 427-8401. Electronic copies of the application and supporting documents, as well as a list of the references cited in this document, may be obtained online at: *https://www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act*. In case of problems accessing these documents, please call the contact listed above.

SUPPLEMENTARY INFORMATION:

Background

The MMPA prohibits the "take" of marine mammals, with certain exceptions. sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq*.) direct the Secretary of Commerce (as delegated to NMFS) to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if certain findings are made and either regulations are proposed or, if the taking is

limited to harassment, a notice of a proposed incidental harassment authorization is provided to the public for review.

Authorization for incidental takings shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s) and will not have an unmitigable adverse impact on the availability of the species or stock(s) for taking for subsistence uses (where relevant). Further, NMFS must prescribe the permissible methods of taking and other "means of effecting the least practicable adverse impact" on the affected species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of the species or stocks for taking for certain subsistence uses (referred to in shorthand as "mitigation"); and requirements pertaining to the mitigation, monitoring and reporting of the takings are set forth. The definitions of all applicable MMPA statutory terms cited above are included in the relevant sections below.

National Environmental Policy Act

To comply with the National Environmental Policy Act of 1969 (NEPA; 42 U.S.C. 4321 *et seq*.) and NOAA Administrative Order (NAO) 216-6A, NMFS must review our proposed action (*i.e.*, the issuance of an IHA) with respect to potential impacts on the human environment.

This action is consistent with categories of activities identified in Categorical Exclusion B4 (IHAs with no anticipated serious injury or mortality) of the Companion Manual for NOAA Administrative Order 216-6A, which do not individually or cumulatively have the potential for significant impacts on the quality of the human environment and for which we have not identified any extraordinary circumstances that would preclude this categorical exclusion. Accordingly, NMFS has preliminarily determined that the issuance of the proposed IHAs qualify to be categorically excluded from further NEPA review. We will review all comments submitted in response to this

notice prior to concluding our NEPA process or making a final decision on the IHA requests.

Summary of Request

On January 11, 2022, NMFS received a request from Chevron for 2 consecutive IHAs to take marine mammals incidental to vibratory pile removal during the Point Orient Wharf Removal in San Francisco Bay, CA over a two-year period. The application was deemed adequate and complete on April 4, 2022. Chevron's request is for take of seven species of marine mammals by Level B harassment only. Neither Chevron nor NMFS expects serious injury or mortality to result from this activity and, therefore, an IHA is appropriate.

NMFS previously issued IHAs to Chevron for pile driving and removal work (82 FR 27240, June 14, 2017; 83 FR 27548, June 13, 2018; 84 FR 28474, June 19, 2019; 85 FR 37064, June 19, 2020; 86 FR 28582, May 27, 2021). Chevron complied with all the requirements (*e.g.,* mitigation, monitoring, and reporting) of the previous IHAs and information regarding their monitoring results may be found in the **Description of Marine Mammals in Areas of the Specified Activity** section.

Description of Proposed Activity

Overview

Chevron proposes to remove the decommissioned Point Orient Wharf (the Wharf) located in northeastern San Francisco Bay (the Bay), CA. The Point Orient Wharf covers an area of approximately 8,094 m (2 acres) and extends approximately 396 m (1,300 ft) into San Francisco Bay. Over the course of 2 years spanning June 1- November 30, 2022 and June 1- November 30, 2023, Chevron will remove the Wharf in its entirety and restore eelgrass to the surrounding subtidal habitat. Piles will be extracted using a variety of methods, including vibratory pile removal. Vibratory pile removal is a non-impulsive

continuous noise source that may result in the incidental take of marine mammals by Level B harassment in the form of behavioral harassment.

Chevron has requested an IHA concurrently for each of the 2 project years. Given the similarities in activities between project years, NMFS is issuing this single **Federal Register** notice to solicit public comments on the issuance of the two similar, but separate, IHAs.

Dates and Duration

Chevron anticipates that removal of the Wharf will occur over 2 years. The in-water work window is anticipated to last from June 1 to November 30 in 2022 (Year 1) and June 1 to November 30 in 2023 (Year 2), although vibratory extraction is expected to occur only in 12 weeks of each annual work period. NMFS expects that a seasonal work window of June through November each year will best protect sensitive life stages of listed fish species in the area. Construction will consist of approximately 100 in-water work days only during daylight hours. Year 1 IHA would be valid from June 1, 2022-May 31, 2023, and Year 2 IHA would span June 1, 2023-May 31, 2024.

Specific Geographic Region

The Point Orient Wharf is located in the central Bay on the western side of Point San Pablo, approximately 2.9 km (1.8 miles) north of the eastern terminus of the Richmond San-Rafael Bridge (RSRB) in Contra Costa County (Figure 1). The Brothers Islands and Lighthouse are approximately 800 meters (2,600 feet) to the north of the Wharf. The Point Orient Wharf is located near a shipping channel, and regular boat traffic in the vicinity accounts for the majority of ambient underwater noise in the area.

The Point Orient Wharf consists of two portions: a narrower portion of the Wharf that runs perpendicular to the shoreline, known as the Causeway and which will be removed in Year 1, and a wider portion that runs parallel to the shoreline, known as the Main Wharf and which will be removed in Year 2. While the Wharf was in use, a

dredged channel and berthing area with a depth of approximately 10 m (33 feet) below mean lower low water (MLLW) was maintained on the western side of the Main Wharf. However, since the Wharf was decommissioned, the channel and berthing area have filled in with sediment. A deep scour pocket of approximately 15.2 m (50 feet) below MLLW is maintained by tidal action west of the Main Wharf and 10 m (33 feet) below MLLW southeast of the Main Wharf. Bathymetry along the Causeway ranges from the upper intertidal at the eastern end of the Causeway to a depth of approximately 4.9 m (16 feet) below MLLW at its western end.

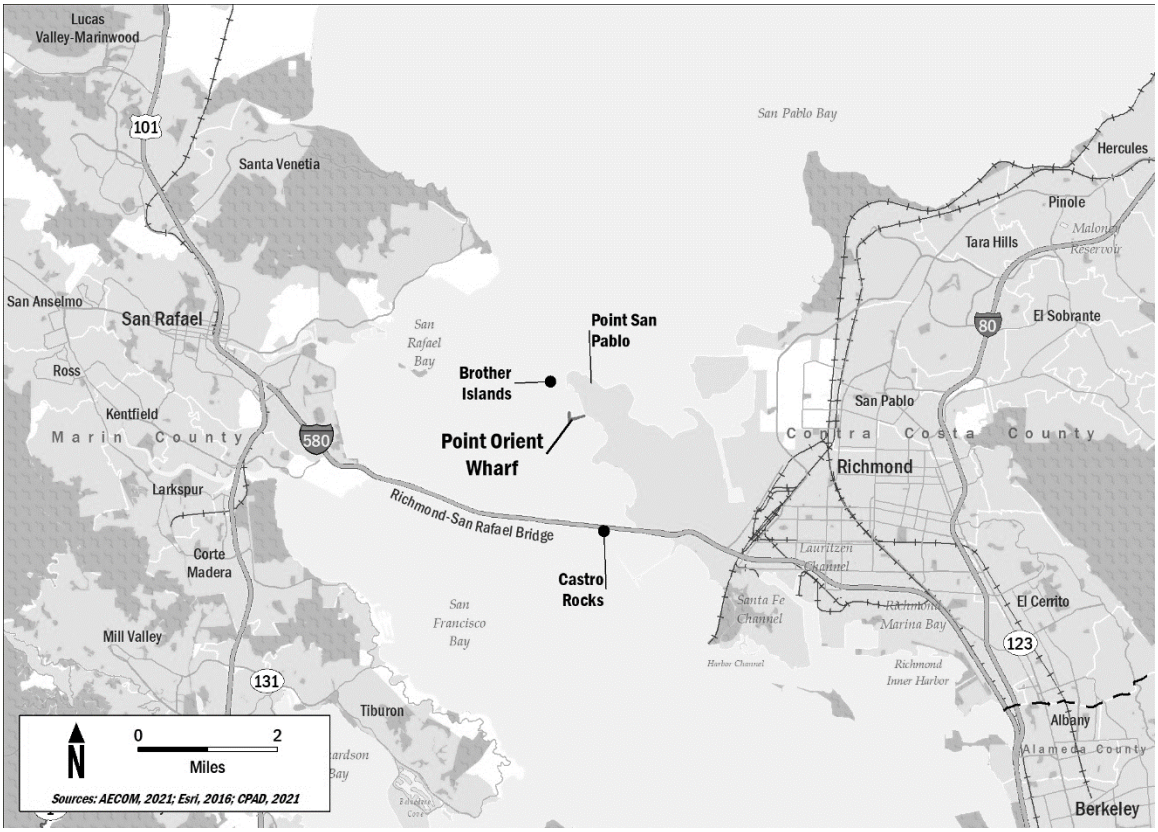

Figure 1. Point Orient Wharf Removal Project Location

Detailed Description of Specific Activity

Chevron intends to remove the Wharf in its entirety, and restore eelgrass to the subtidal habitat in areas under the Causeway portion of the Wharf that are currently affected by the shading imposed by the structure. This project will utilize direct pull or vibratory removal methods to extract approximately 910 timber piles and 90 steel piles from the Bay. During Year 1, Chevron plans to remove the Causeway portion of the Wharf and repair an area of unstable shoreline embankment just north of the Causeway. The shoreline embankment stabilization, involving only upland work, will not result in the take of marine mammals and will not be considered further. Removal of the Causeway will involve the extraction of 534 12" treated timber piles (133 of which are concrete encased) through direct pull or vibratory removal methods. Only one pile will be removed at a time. The condition of the piles would dictate the methods that would be implemented. If the piles have sufficient structural integrity, the pile would be wrapped with chain or cable attached to a crane and pulled directly upward, pulling the pile from the sediment. Vibratory extraction would likely be the primary method of removal and involve the use of a vibratory pile driving hammer to loosen the pile with vibration. The vibration causes liquefaction of the surrounding sediment, allowing the pile to be pulled straight up and out. If a pile is unable to be removed entirely or breaks when pulled, the pile may be cut 0.6 m (2 feet) under the mudline using a hydraulic chainsaw or underwater torch cutting system, however, vibratory extraction would be the most

impactful removal method. Additional materials removed from the Causeway would include 488 m (1,600 feet) of process piping, steel pipes, wooden decking, pipe supports, light poles, and pile caps. Removal of these additional materials from the above-water portion of the pier would not result in takes of marine mammals and as such, this will not be considered further. All materials removed would be loaded onto barges for transport to a permitted disposal or recycling facility.

During Year 2, the Main Wharf portion would be removed and eelgrass would be planted after its removal. Removal of the Main Wharf would include the removal of 376 12" timber piles (156 of which are concrete encased), 34 36" steel piles, 40 30" piles, and 16 24" piles by similar methods as in Year 1. Only one pile would be removed at a time, and only one type of pile would be removed per day. Additional materials removed from the Main Wharf would include steel pipe bridges, steel fendering, and wooden decking. Removing these additional materials would not result in takes of marine mammals and will not be considered further. As in Year 1, all materials removed would be loaded onto barges for transport to a permitted disposal or recycling facility. After the Main Wharf is removed, eelgrass will be planted in suitable areas to restore habitat quality to the Bay. Planting eelgrass will not result in the take of marine mammals and will not be considered further. Table 1 below provides additional detail on duration of construction activities:

Table 1. Summary of Pile Removal Activities By Year

Pile Type	Diameter (inches)	Number of Piles	Approximate Duration of Vibration per Pile (minutes)	Approximate Number of Piles Removed per day	Total Number of Work Days
Year 1 Vibratory Extraction					
Timber	12	401	6	18	35*

Timber concrete encased	18 (12-inch timber core)	133	9	11	
Year 2 Vibratory Extraction					
Timber	12	220	6	18	27*
Timber concrete encased	18 (12-inch timber core)	156	9	11	
Steel	36	34	45	2	18
Steel	30	40	32	3	10
Steel	24	16	26	4	6

** Removal of bare timber pile and concrete encased piles will be co-mingled during these work days.*

Proposed mitigation, monitoring, and reporting measures are described in detail later in this document (please see **Proposed Mitigation** and **Proposed Monitoring and Reporting**).

Description of Marine Mammals in the Area of Specified Activities

Sections 3 and 4 of the application summarize available information regarding status and trends, distribution and habitat preferences, and behavior and life history, of the potentially affected species. Additional information regarding population trends and threats may be found in NMFS's Stock Assessment Reports (SARs; *https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments*) and more general information about these species (*e.g.*, physical and behavioral descriptions) may be found on NMFS's website (*https://www.fisheries.noaa.gov/find-species)*.

Table 2 lists all species or stocks for which take is expected and proposed to be authorized for both proposed IHAs, and summarizes information related to the population or stock, including regulatory status under the MMPA and Endangered Species Act (ESA) and potential biological removal (PBR), where known. For taxonomy, we follow Committee on Taxonomy (2021). PBR is defined by the MMPA as the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population (as described in NMFS's SARs). While no mortality is anticipated or authorized here, PBR and annual serious injury and mortality from anthropogenic sources are included here as gross indicators of the status of the species and other threats.

Marine mammal abundance estimates presented in this document represent the total number of individuals that make up a given stock or the total number estimated within a particular study or survey area. NMFS's stock abundance estimates for most species represent the total estimate of individuals within the geographic area, if known, that comprises that stock. For some species, this geographic area may extend beyond U.S. waters. All managed stocks in this region are assessed in NMFS's U.S. Pacific Marine Mammal SARs (*e.g.*, Carretta *et al.,* 2021). All values presented in Table 2 are the most recent available at the time of publication and are available in the 2020 SARs (Carretta *et al.,* 2021) and draft 2021 SARs (available online at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/draft-marine-mammal-stock-assessment-reports*).

Table 2. Marine Mammals Likely to Occur in the Project Area

Common name	Scientific name	Stock	ESA/MMPA status; Strategic (Y/N)[1]	Stock abundance (CV, N_{min}, most recent abundance survey)[2]	PBR	Annual M/SI[3]
Order Cetartiodactyla – Cetacea – Superfamily Mysticeti (baleen whales)						
Family Eschrichtiidae						

Gray whale	*Eschrichtius robustus*	Eastern N Pacific	-, -, N	29960 (0.05, 25,849, 2016)	801	131
Superfamily Odontoceti (toothed whales, dolphins, and porpoises)						
Family Delphinidae						
Bottlenose Dolphin	*Tursiops truncatus*	California Coastal	-, -, N	453 (0.06, 346, 2011)	2.7	≥2.0
Family Phocoenidae (porpoises)						
Harbor Porpoise	*Phocoena phocoena*	San Francisco-Russian River	-, -, N	7,777 (0.62, 4,811, 2017)	73	≥0.4
Order Carnivora – Superfamily Pinnipedia						
Family Otariidae (eared seals and sea lions)						
California Sea Lion	*Zalophus californianus*	U.S.	-, -, N	257,606 (N/A, 233,515, 2014)	14,011	>320
Family Phocidae (earless seals)						
Harbor Seal	*Phoca vitulina*	California	-, -, N	30,968 (N/A, 27,348, 2012)	1,641	43
Northern Elephant Seal	*Mirounga angustirostris*	California Breeding	-, -, N	187,386 (N/A, 85,369, 2013)	5,122	5.3
Northern Fur Seal	*Callorhinus ursinus*	California	-, D, N	14,050 (N/A, 7,524, 2013)	451	1.8

[1] - Endangered Species Act (ESA) status: Endangered (E), Threatened (T)/MMPA status: Depleted (D). A dash (-) indicates that the species is not listed under the ESA or designated as depleted under the MMPA. Under the MMPA, a strategic stock is one for which the level of direct human-caused mortality exceeds PBR or which is determined to be declining and likely to be listed under the ESA within the foreseeable future. Any species or stock listed under the ESA is automatically designated under the MMPA as depleted and as a strategic stock.

[2] - NMFS marine mammal stock assessment reports online at: *www.nmfs.noaa.gov/pr/sars/.* CV is coefficient of variation; Nmin is the minimum estimate of stock abundance. In some cases, CV is not applicable [explain if this is the case]

[3] - These values, found in NMFS's SARs, represent annual levels of human-caused mortality plus serious injury from all sources combined (*e.g.,* commercial fisheries, ship strike). Annual M/SI (mortality/serious injury) often cannot be determined precisely and is in some cases presented as a minimum value or range. A CV associated with estimated mortality due to commercial fisheries is presented in some cases.

As indicated above, all 7 species (with 7 managed stocks) in Table 2 temporally and spatially co-occur with the activity to the degree that take is reasonably likely to occur. All species that could potentially occur in the proposed survey areas are included in Table 4-1 of the IHA application. While Steller sea lions (*Eumetopias jubatus*) and humpback whales (*Megaptera noveangliae*) have been documented in the area, their occurrence in the Bay is sufficiently rare that take is not expected to occur, and they are not discussed further beyond the explanation provided here.

Steller sea lions have been reported at Año Nuevo Island between Santa Cruz and Half Moon Bay as well as at the Farallon Islands about 48 kilometers (30 miles) off the coast of San Francisco (Fuller 2012). However, very few studies have detected Steller sea lions in San Francisco Bay. The San Francisco Bay Subtidal Habitat Goals Report

contains one reference to Steller sea lions in the Bay (Cohen 2010), however, this species is considered a rare visitor and not expected to occur in the project area during construction activities.

Humpback whales are also rare visitors to the project area as they are more commonly observed in offshore waters or just inside the Bay entrance. Limited sightings of humpback whales have occurred inside the Bay. In 1985, one humpback whale traveled into the Bay and up the Sacramento River; the same whale re-entered the Bay in the fall of 1990 and stranded (Fimrite 2005). In May 2007, a humpback whale mother and calf spent slightly more than 2 weeks in the Bay and Sacramento River before returning to coastal waters (CBS News 2007). Due to the limited sightings of humpback whales in the Bay, this species is not expected to occur in the project area during construction activities.

Gray Whale

Gray whales are large baleen whales, easily recognized by their mottled gray color and lack of a dorsal fin. They are one of the most frequently seen whales along the California coast. Gray whales feed in the northern waters, primarily off the Bering, Chukchi, and western Beaufort seas during the summer, although a small number of whales, known as the Pacific Coast Feeding Group (PCFG), is known to feed along the Pacific coast between Kodiak Island, AK and northern California (Carretta *et al.,* 2021). Most whales begin their southward migration from the feeding grounds in November and December, traveling south along the eastern Pacific coast to their winter breeding and calving areas in lagoons along the coast of Baja California, Mexico. The southward migration occurs from December through February, peaking in January (NOAA NCCOS 2007). The northward migration to the feeding occurs from February through May, peaking in March (NOAA NCCOS 2007). Gray whales also feed in nearshore waters just outside of San Francisco Bay, and a few individuals will enter San Francisco Bay during

the northward migration. Since 2019, it has become more common for gray whales on their northward migration to enter San Francisco Bay during the months of February and March to feed (Bartlett 2022).

Monitors from the RSRB recorded 12 living and 2 dead gray whales in either the Central or North Bay. All but 2 sightings occurred during the months of April and May: One whale was sighted in June and one in October (Winning 2008). In March 2022, a mom and calf were sighted between Alcatraz and Angel Island (Bartlett 2022). During the spring of 2019, 12 dead gray whales washed up on the shoreline of the Bay and on Ocean Beach on the west side of San Francisco. Since 2018, the number of gray whale strandings per year in the Bay area have varied between 5 whales in 2018 and 2020, and 15 whales in 2021 (Bartlett 2022). Ship strikes, malnutrition, and entanglement were the cause of death for strandings (Bartlett 2022; TMMC 2019). The Oceanic Society found that all age classes of gray whales may enter the Bay, either as singles or in groups of up to five individuals (Winning 2008). It is likely that gray whales would typically enter the Bay from February to May; however, it is also possible that a gray whale may enter the project area during pile extraction.

Eastern North Pacific gray whales experienced an unusual mortality event (UME) beginning in 2019 when large numbers of whales began stranding from Mexico to Alaska. Necropsy results indicated that many whales showed signs of nutritional stress (NOAA 2020). This UME is ongoing and similar to that of 1999 and 2000 when large numbers of gray whales stranded along the eastern Pacific coast (Moore *et al.,* 2001; Gulland *et al.,* 2005). Oceanographic factors limiting food availability for whales was identified as a likely cause of the prior UME and may also be influencing the current UME (LeBouef *et al.,* 2000; Moore *et al.,* 2001; Minobe 2002; Gulland *et al.,* 2005).

Bottlenose Dolphin

The common bottlenose dolphin is found in all oceans across the globe, and is one of the most commonly observed marine mammal species in coastal waters and estuaries. Two genetically distinct stocks occur off the coast of California, the California coastal stock and the California/Oregon/Washington offshore stock. The range of the California coastal stock has expanded northward along the coast since the 1982-1983 El Niño event (Hansen and Defran, 1990; Wells *et al.,* 1990). This stock now occurs as far north as the San Francisco Bay region. Individuals show very little site fidelity to any portion of the California coast (Szczepaniak *et al.,* 2013; Weller *et al.,* 2016), although, as of 2019, the Golden Gate Cetacean Research Dolphin Project had identified 91 individual dolphins in the Bay (APER 2019). Since 2008, coastal bottlenose dolphins have been observed regularly in San Francisco Bay with many observations occurring in the proximity of the Golden Gate near the mouth of the Bay (Bay Nature Institute 2014). A limited number of individuals may approach the project area during in-water construction.

Harbor Porpoise

Harbor porpoises are typically found in cool temperate to sub-polar waters less than 62.6 degrees Fahrenheit (17 degrees Celsius) (Read 1999) where prey aggregations are concentrated (Watts and Gaskin, 1985). In the eastern Pacific, harbor porpoises occur in coastal and inland waters from Point Conception, California to Alaska (Gaskin 1984). Four genetically distinct stocks have been identified along the coast of California (Carretta *et al.,* 2021). The non-migratory San Francisco-Russian River stock ranges from Pescadero to Point Arena, California, utilizes relatively shallow nearshore waters (<100 meters), and feeds on small schooling fishes such as northern anchovy and Pacific herring which enter San Francisco Bay (Caretta *et al.,* 2021; Stern *et al.,* 2017). Harbor porpoises tend to occur in small groups and are considered to be relatively shy animals. Previous estimates for harbor porpoises were based upon aerial surveys conducted between coastal

waters and the 50 fm-isobath (Forney 1999), however, surveys have been expanded further offshore and to include shipboard platforms.

Before 2008, harbor porpoises were observed primarily outside of San Francisco Bay although the Bay has historically been considered habitat for harbor porpoises (Broughton 1999). Recently, there have been increasingly common observations of harbor porpoises within the Bay (Duffy 2015; Stern *et al.,* 2017). From 2011-2014, a visual count conducted by the Golden Gate Cetacean Research (GGCR) program identified 2,698 porpoise groups from the Golden Gate Bridge (Stern *et al.,* 2017). Harbor porpoise movements into the Bay are linked to tidal cycle with the greatest numbers of porpoises being sighted during high tide to ebb tide periods. Movements into the Bay are likely influenced by prey availability (Duffy 2015; Stern *et al.,* 2017). Although harbor porpoise sightings are generally concentrated in the vicinity of the Golden Gate Bridge and Angel Island, southwest of the project site (Keener 2011), this species is more frequently venturing into the Bay east of Angel Island and may approach the project area during pile removal activities.

California Sea Lion

California sea lions breed mainly on offshore islands, ranging from Southern California's Channel Islands to Mexico during the spring (Heath and Perrin, 2008), although a few pups have been born on Año Nuevo and the Farallon Islands (TMMC 2020). During the non-breeding season, adult and sub-adult males as well as juveniles migrate northward along the coast, to central and northern California, Oregon, Washington, and Vancouver Island (Jefferson *et al.,* 1993). They return south the following spring (Lowry and Forney, 2005; Heath and Perrin, 2008) while females tend to remain closer to rookeries (Antonelis *et al.,* 1990; Melin *et al.,* 2008). Based upon statistical analysis of annual pup count, annual survivorship, and human-induced impacts,

the California stock appears to have experienced an annual increase from 1975-2014 (Laake *et al.,* 2018).

Although California sea lions forage and conduct many activities within the water, they also use haul outs. In San Francisco Bay, sea lions haul out primarily on floating docks at Pier 39 at the Fisherman's Wharf area of the San Francisco Marina, approximately 12.5 kilometers (7.8 miles) southwest of the project area. In addition to the Pier 39 haul out, California sea lions haul out on buoys, wharfs, and similar structures throughout the Bay. Occurrence of sea lions in typically lowest in June during the breeding season and higher during El Niño seasons. During monitoring for the RSRB project, observers sighted at least 90 sea lions in the northern Bay and at least 57 in the central Bay, although no pupping activity was observed (Caltrans 2012).

California sea lions are mainly seen swimming off the San Francisco and Marin shorelines within the Bay, but may occasionally enter the project area to forage. They feed seasonally on schooling fish and cephalopods, including salmon, herring, sardines, anchovy, mackerel, whiting, rockfish, and squid (Lowry *et al.,* 1990, 1991; Lowry and Carretta, 1999; Weise 2000; Carretta *et al.,* 2021). Seasonal and annual dietary shifts vary with environmental fluctuations that affect prey populations. In central California sea lion populations, short term seasonal variations in diet are related to prey movement and life history patterns while long-term annual changes correlate to large-scale ocean climate shifts and foraging competition with commercial fisheries (Weise and Harvey 2008; McClatchie *et al.,* 2016). Climate change, specifically increasing sea surface temperatures in the California current, negatively impact prey species availability and reduce California sea lion survival rates (DeLong *et al.,* 2017; Laake *et al.,* 2018). Other conservation concerns for California sea lions include vessel strikes, non-commercial fishery human caused mortality, hookworms, and competition for forage with commercial fisheries (Carretta *et al.,* 2018; Carretta *et al.,* 2021).

California sea lions experienced a UME, not correlated to an El Niño event, from 2013-2017 (Carretta *et al.,* 2021). Pup and juvenile age classes experienced high mortality during this time, likely attributed to sea lion prey availability, specifically sardines. California sea lions are also susceptible to the algal neurotoxin, domoic acid (Brodie *et al.,* 2006; Carretta *et al.,* 2021). This neurotoxin is expected to cause future mortalities among California sea lions due to the prevalence of harmful algal blooms within their habitat.

In San Francisco Bay, California sea lions have been observed foraging near Pier 39, in the shipping channel south of Yerba Buena Island, and along the west side of the Chevron Long Wharf (AECOM 2019). The relatively deep shipping channel west and north of the Point Orient Wharf would also provide foraging area for sea lions. During monitoring at the Chevron Long Wharf Maintenance and Efficiency Project (CLWMEP), Protected Species Observers (PSOs) documented a sea lion foraging on a small shark in 2019 and 8 sea lions in the project area in 2020 (AECOM 2019; 2020). As sea lions may forage widely throughout San Francisco Bay, there is the potential that this species may enter the project area during construction activities.

Harbor Seal

Pacific harbor seals are distributed from Baja California north to the Aleutian Islands of Alaska. Seals primarily haul out on remote mainland and island beaches, reefs, and estuary areas. At haul outs, they will congregate to rest, socialize, breed, and molt. Haul outs are relatively consistent from year to year (Kopec and Harvey, 1995), and females have been documented to return to their own natal haul out when breeding (Green *et al.,* 2006).

The Pacific harbor seal population experienced an increase from 1981-2004, followed by a steady decrease from between 2005-2010. The maximum statewide count showed that the California stock sharply declined in 2009 and 2012 (Duncan 2019). The

California Department of Transportation (Caltrans) conducted extensive marine mammal surveys in San Francisco Bay before and during seismic retrofit on the RSRB from 1998-2002. Caltrans determined that a minimum of 500 harbor seals occur within San Francisco Bay (Green *et al.,* 2002), an estimate that agrees with more recent seal counts (Lowry *et al.,* 2008; Codde *et al.,* 2020). The California harbor seal stock may be stabilizing at or near carrying capacity, although conservation concerns such as vessel strikes, disturbance, fishing gear entanglement, and habitat loss are still a concern in the San Francisco Bay area (Duncan 2019). The nearest major haul out site to the project area is Castro Rocks, located approximately 2,600 meters (1.6 miles) south of the southernmost point on the Wharf. Use of Castro Rocks as a haul out site has been increasing over the years (Codde *et al.,* 2020). Smaller numbers of harbor seals have also been reported to haul out on the western Brother Island, approximately 800 meters (2,600 ft) to the north of the Wharf.

The number of harbor seals in San Francisco Bay increases during the winter foraging period as compared to the spring breeding season. In the Bay, harbor seals are known to forage on a variety of fish, crustaceans, and cephalopods in found in shallow intertidal waters. Based upon fecal samples obtained from haul out sites in the Bay, major prey items include the yellowfin goby, northern anchovy, Pacific herring, staghorn sculpin, plainfin midshipman, and white croaker (Harvey and Torok, 1994). Seals haul out on Castro Rocks year-round during medium to low tides, and usage of this haul out site is highest during the summer molting period of June – July. Based upon visual monitoring conducted by PSOs during the CLWMEP in 2019 (AECOM 2020), the number of hauled out seals on Castro Rocks may vary greatly, from 0 to 50 seals, depending upon the tide. Due to the proximity of the Wharf to the Castro Rocks haul out site, it is likely that harbor seals will be in the project area during construction activities.

Northern Elephant Seal

Northern elephant seals commonly pup, breed, rest, and molt on California coastal mainland and island sites. In the vicinity of San Francisco Bay, seals breed, molt, and haul out at Año Nuevo Island, the Farallon Islands, and Point Reyes Seashore (Lowry et *al.,* 2014). The birthing and breeding season occurs from December through March. Pups remain onshore or in adjacent shallow waters through May, when they may make brief stops in San Francisco Bay (Caltrans 2015). Pups of the year may also make brief stops in the Bay when they return in late summer and fall to haul out at rookery sites. Adults typically reside in offshore pelagic waters when not breeding or molting, however, a healthy juvenile male was observed basking at Aquatic Park in San Francisco in the spring of 2019 (Hernández 2020). Caltrans (2015) estimates that approximately 100 juvenile northern elephant seals of the California breeding stock strand in San Francisco Bay each year. Although rare visitors to the Bay, it is possible that a few individuals may be present during construction activities.

Northern Fur Seal

Northern fur seals range from southern California north to the Bering Sea, and west to the Okhotsk Sea and Honshu Island, Japan in the west (Carretta *et al.*, 2021). The majority of the population breeds on the Pribilof Islands in the southern Bering Sea, although a small percentage of the population breed at San Miguel Island and the Farallon Islands off the coast of California. Northern fur seals show high site fidelity to breeding and rookery locations, and may swim long distances for prey. Their diet is composed of small schooling fish such as walleye Pollock, herring, hake, anchovy, and squid. Diet and population trends vary with environmental conditions, such as El Niño (Carretta *et al.,* 2021). The California stock of northern fur seals is known to forage in waters outside of San Francisco Bay. Juvenile northern fur seals occasionally strand in San Francisco Bay, especially during El Niño events (TMMC 2016). The Marine Mammal Center (TMMC) responds to approximately five northern fur seal strandings per

year in San Francisco Bay (TMMC 2016). Although rarely observed in San Francisco Bay, it is possible individuals may be present during construction activities.

Marine Mammal Hearing

Hearing is the most important sensory modality for marine mammals underwater, and exposure to anthropogenic sound can have deleterious effects. To appropriately assess the potential effects of exposure to sound, it is necessary to understand the frequency ranges marine mammals are able to hear. Current data indicate that not all marine mammal species have equal hearing capabilities (*e.g.*, Richardson *et al.*, 1995; Wartzok and Ketten, 1999; Au and Hastings, 2008). To reflect this, Southall *et al.* (2007) recommended that marine mammals be divided into functional hearing groups based on directly measured or estimated hearing ranges on the basis of available behavioral response data, audiograms derived using auditory evoked potential techniques, anatomical modeling, and other data. Note that no direct measurements of hearing ability have been successfully completed for mysticetes (*i.e.*, low-frequency cetaceans). Subsequently, NMFS (2018) described generalized hearing ranges for these marine mammal hearing groups. Generalized hearing ranges were chosen based on the approximately 65 decibel (dB) threshold from the normalized composite audiograms, with the exception for lower limits for low-frequency cetaceans where the lower bound was deemed to be biologically implausible and the lower bound from Southall *et al.* (2007) retained. Marine mammal hearing groups and their associated hearing ranges are provided in Table 3.

Table 3 Marine Mammal Hearing Groups (NMFS, 2018).

Hearing Group	Generalized Hearing Range*
Low-frequency (LF) cetaceans (baleen whales)	7 Hz to 35 kHz
Mid-frequency (MF) cetaceans (dolphins, toothed whales, beaked whales, bottlenose whales)	150 Hz to 160 kHz

High-frequency (HF) cetaceans (true porpoises, *Kogia*, river dolphins, Cephalorhynchid, *Lagenorhynchus cruciger* & *L. australis*)	275 Hz to 160 kHz
Phocid pinnipeds (PW) (underwater) (true seals)	50 Hz to 86 kHz
Otariid pinnipeds (OW) (underwater) (sea lions and fur seals)	60 Hz to 39 kHz
* Represents the generalized hearing range for the entire group as a composite (*i.e.*, all species within the group), where individual species' hearing ranges are typically not as broad. Generalized hearing range chosen based on ~65 dB threshold from normalized composite audiogram, with the exception for lower limits for LF cetaceans (Southall *et al*., 2007) and PW pinniped (approximation).	

The pinniped functional hearing group was modified from Southall *et al*., (2007) on the basis of data indicating that phocid species have consistently demonstrated an extended frequency range of hearing compared to otariids, especially in the higher frequency range (Hemilä *et al*., 2006; Kastelein *et al*., 2009; Reichmuth and Holt, 2013).

For more detail concerning these groups and associated frequency ranges, please see NMFS (2018) for a review of available information. Seven marine mammal species (three cetacean and four pinniped (one otariid and three phocid) species) have the reasonable potential to co-occur with the proposed survey activities. Please refer to Table 2. Of the cetacean species that may be present, one is classified as low-frequency cetaceans (*i.e*., all mysticete species), one is classified as mid-frequency cetaceans (*i.e*., all delphinid and ziphiid species and the sperm whale), and one is classified as high-frequency cetaceans (*i.e*., harbor porpoise and Kogia spp.).

Potential Effects of Specified Activities on Marine Mammals and their Habitat

This section includes a summary and discussion of the ways that components of the specified activity may impact marine mammals and their habitat. The **Estimated Take** section later in this document includes a quantitative analysis of the number of individuals that are expected to be taken by this activity. The **Negligible Impact Analysis and Determination** section considers the content of this section, the **Estimated Take** section, and the **Proposed Mitigation** section, to draw conclusions regarding the likely impacts of these activities on the reproductive success or survivorship of

individuals and how those impacts on individuals are likely to impact marine mammal species or stocks.

The marine soundscape is comprised of both ambient and anthropogenic sounds. Ambient sound is defined as the all-encompassing sound in a given place and is usually a composite of sound from many sources both near and far. The sound level of an area is defined by the total acoustical energy being generated by known and unknown sources. These sources may include physical (*e.g.*, waves, wind, precipitation, earthquakes, ice, atmospheric sound), biological (*e.g.*, sounds produced by marine mammals, fish, and invertebrates), and anthropogenic sound (*e.g.*, vessels, dredging, aircraft, construction).

The sum of the various natural and anthropogenic sound sources at any given location and time—which comprise "ambient" or "background" sound—depends not only on the source levels (determined by current weather conditions and levels of biological and shipping activity) but also on the ability of sound to propagate through the marine environment. In turn, sound propagation is dependent upon the spatially and temporally varying properties of the water column and sea floor. As a result of the dependence upon a large number of varying factors, ambient sound levels can be expected to vary widely over both coarse and fine spatial and temporal scales. Sound levels at a given frequency and location can vary by 10-20 dB per day (Richardson *et al.,* 1995). The result is that, depending upon the source type and its intensity, sound from the specified activity may be a negligible addition to the local environment or could form a distinctive signal that could affect marine mammals.

In-water construction activities associated with the project would include vibratory pile removal, a type of non-impulsive sound. Non-impulsive sounds (*e.g.,* aircraft, machinery operations such as drilling or dredging, vibratory pile driving/removal, and active sonar systems) can be broadband, narrowband, or tonal, brief or prolonged (continuous or intermittent), and typically do not have the high peak sound

pressure with rapid rise/decay time that impulsive sounds do (ANSI 1995; NIOSH 1998; NMFS 2018). Impulsive sounds (*e.g.,* explosions, gunshots, sonic booms, impact pile driving) are typically transient, brief (less than 1 second), broadband, and consist of high peak sound pressure with rapid rise time and rapid decay (ANSI 1986; NIOSH 1998; ANSI 2005; NMFS 2018). The distinction between impulsive and non-impulsive sounds is important because they have differing potential to cause physical effects, particularly with regard to hearing (*e.g.,* Ward 1997 in Southall *et al.,* 2007).

Impact hammers operate by repeatedly dropping a heavy piston onto a pile to drive the pile into the substrate. Sound generated by impact hammers is characterized by rapid rise times and high peak levels, a potentially injurious combination (Hastings and Popper, 2005). Vibratory hammers install or remove piles by vibrating them, allowing the weight of the hammer to push the pile into the sediment during installation. The vibrations produced also cause liquefaction of the substrate surrounding the pile, enabling the pile to be extracted or driven into the ground more easily. Vibratory hammers produce significantly less sound than impact hammers. Peak sound pressure levels (SPLs) may be 180 dB or greater, but are generally 10 to 20 dB lower than SPLs generated during pile driving of the same size pile (Oestman *et al.*, 2009). Rise time is slower, reducing the probability and severity of injury, and sound energy is distributed over a greater amount of time (Nedwell and Edwards, 2002; Carlson *et al.,* 2005). The likely or possible impacts of Chevron's proposed activity on marine mammals could involve both non-acoustic and acoustic stressors. Potential non-acoustic stressors could result from the physical presence of equipment and personnel; however, any impacts to marine mammals are expected to be acoustic in nature. Acoustic stressors involve effects of vibratory pile removal.

Acoustic Impacts

In general, animals exposed to natural or anthropogenic sound may experience physical and psychological effects, ranging in magnitude from none to severe (Southall *et al.,* 2007). Exposure to pile removal noise has the potential to result in auditory threshold shift and behavioral reactions (*e.g.,* avoidance, temporary cessation of foraging and vocalizing, changes in dive behavior). Exposure to anthropogenic noise can also lead to non-observable physiological responses, such as an increase in stress hormones. Additional noise in a marine mammal's habitat can mask acoustic cues used by marine mammals to carry out daily functions such as communication and predator and prey detection. The effects of pile removal noise on marine mammals are dependent upon several factors, including but not limited to the species, age, and sex class (*e.g.,* adult male vs. mom with calf), duration of exposure, the distance between the pile and the animal, received levels, behavior at time of exposure, and previous history with exposure (Wartzok *et al.,* 2004; Southall *et al.,* 2007). Here we discuss the physical auditory effects (threshold shifts) followed by behavioral effects and potential impacts on habitat.

NMFS defines a noise-induced threshold (TS) as a change, usually an increase, in the threshold of audibility at a specified frequency or portion of an individual's hearing range above a previously established reference level (NMFS 2018). The amount of threshold shift is customarily expressed in decibels (dB). A TS can be permanent or temporary. As described in NMFS (2018), there are numerous factors to consider when examining the consequence of TS including, but not limited to, the signal temporal pattern (*e.g.,* impulsive or non-impulsive), likelihood an individual would be exposed for a long enough duration or to a high enough level to induce a TS, the magnitude of a TS, time to recover (seconds to minutes or hours to days), the frequency range of the exposure (*i.e*. spectral content), the hearing and vocalization frequency range of the exposed species relative to the signal's frequency spectrum (*i.e.,* how an animal uses

sound within the frequency band of the signal; *e.g.,* Kalstein *et al.,* 2014), and the overlap between the animal and the source (*e.g.,* spatial, temporal, and spectral).

Permanent Threshold Shift (PTS) — NMFS defines PTS as a permanent, irreversible increase in the threshold of audibility at a specified frequency or portion of an individual's hearing range above a previously established reference level (NMFS 2018). Available data from humans and other terrestrial mammals indicate that a 40 dB threshold shift approximates PTS onset (see Ward *et al.,* 1958, 1959; Ward 1960; Kryter *et al.,* 1966; Miller 1974; Henderson *et al.,* 2008). PTS levels for marine mammals are estimates, as with the exception of a single study unintentionally inducing PTS in a harbor seal (Kastak *et al.,* 2008), there are no empirical data measuring PTS in marine mammals largely due to the fact that, for various ethical reasons, experiments involving anthropogenic noise exposure at levels inducing PTS are not typically pursued or authorized (NMFS 2018).

Temporary Threshold Shift (TTS) —TTS is a temporary, reversible increase in the threshold of audibility at a specified frequency or portion of an individual's hearing range above a previously established reference level (NMFS 2018). Based on data from cetacean TTS measurements (see Southall *et al.,* 2007), a TTS of 6 dB is considered the minimum threshold shift clearly larger than any day-to-day or session-to-session variation in a subject's normal hearing ability (Schlundt *et al.,* 2000; Finneran *et al.,* 2000, 2002). As described in Finneran (2015), marine mammal studies have shown the amount of TTS increases with cumulative sound exposure level (SELcum) in an accelerating fashion: At low exposures with lower SELcum, the amount of TTS is typically small and the growth curves have shallow slopes. At exposures with higher SELcum, the growth curves become steeper and approach linear relationships with the noise SEL.

Depending on the degree (elevation of threshold in dB), duration (*i.e.,* recovery time), and frequency range of TTS, and the context in which it is experienced, TTS can have effects on marine mammals ranging from discountable to serious (similar to those discussed in auditory masking, below). For example, a marine mammal may be able to readily compensate for a brief, relatively small amount of TTS in a non-critical frequency range that takes place during a time when the animal is traveling through the open ocean, where ambient noise is lower and there are not as many competing sounds present. Alternatively, a larger amount and longer duration of TTS sustained during a time when communication is critical for successful mother/calf interactions could have more serious impacts. We note that reduced hearing sensitivity as a simple function of aging has been observed in marine mammals, as well as humans and other taxa (Southall *et al.,* 2007), so we can infer that strategies exist for coping with this condition to some degree, though likely not without cost.

Currently, TTS data only exist for four species of cetaceans (bottlenose dolphin, beluga whale (*Delphinapterus leucas*), harbor porpoise, and Yangtze finless porpoise (*Neophocoena asiaeorientalis*) and five species of pinnipeds exposed to a limited number of sound sources (*i.e.,* mostly tones and octave-band noise) in laboratory settings (Finneran 2015). TTS was not observed in trained spotted (*Phoca largha*) and ringed (*Pusa hispida*) seals exposed to impulsive noise at levels matching previous predictions of TTS onset (Reichmuth *et al.,* 2016). In general, harbor seals and harbor porpoises have a lower TTS onset than other measured pinniped or cetacean species (Finneran 2015). Additionally, the existing marine mammal TTS data come from a limited number of individuals within these species. No data are available on noise-induced hearing loss for mysticetes. For summaries of data on TTS in marine mammals or for further discussion of TTS onset thresholds, please see Southall *et al.,* (2007), Finneran and Jenkins (2012), Finneran (2015), and Table 5 in NMFS (2018). Extracting piles for this project requires

vibratory pile removal, yet removal of only one pile type would occur at a time. There would also be pauses in pile removal activities; given these pauses and that any marine mammals in the ensonified area would likely move through the area and not remain for extended periods of time, the potential for TS declines.

Behavioral Harassment —Exposure to noise from pile removal also has the potential to behaviorally disturb marine mammals. Available studies show wide variation in response to underwater sound; therefore, it is difficult to predict specifically how any given sound in a particular instance might affect marine mammals perceiving the signal. If a marine mammal does react briefly to an underwater sound by changing its behavior or moving a small distance, the impacts of the change are unlikely to be significant to the individual, let alone the stock or population. However, if a sound source displaces marine mammals from an important feeding or breeding area for a prolonged period, impacts on individuals and populations could be significant (*e.g.,* Forney *et al.,* 2017; Lusseau and Bejder 2007; Weilgart 2007).

Disturbance may result in changing durations of surfacing and dives, number of blows per surfacing, or moving direction and/or speed; reduced/increased vocal activities; changing/cessation of certain behavioral activities (such as socializing or feeding); visible startle response or aggressive behavior (such as tail/fluke slapping or jaw clapping); avoidance of areas where sound sources are located. Pinnipeds may increase their haul out time, possibly to avoid in-water disturbance (Thorson and Reyff, 2006). Behavioral responses to sound are highly variable and context-specific and any reactions depend on numerous intrinsic and extrinsic factors (*e.g.,* species, state of maturity, experience, current activity, reproductive state, auditory sensitivity, time of day), as well as the interplay between factors (*e.g.,* Richardson *et al.,* 1995; Wartzok *et al.,* 2003; Southall *et al.,* 2007; Weilgart 2007; Archer *et al.,* 2010). Behavioral reactions can vary not only among individuals but also within an individual, depending on previous experience with

a sound source, context, and numerous other factors (Ellison *et al.,* 2012), and can vary depending on characteristics associated with the sound source (e.g., whether it is moving or stationary, number of sources, distance from source). Please see Appendices B-C of Southall *et al.* (2007) for a review of studies involving marine mammal behavioral responses to sound.

Disruption of feeding behavior can be difficult to correlate with anthropogenic sound exposure, so it is usually inferred by observed displacement from known foraging areas, the appearance of secondary indicators (*e.g.,* bubble nets or sediment plumes), or changes in dive behavior. As for other types of behavioral response, the frequency, duration, and temporal pattern of signal presentation, as well as differences in species sensitivity, are likely contributing factors to differences in response in any given circumstance (*e.g.,* Croll *et al.,* 2001; Nowacek *et al.,* 2004; Madsen *et al.,* 2006; Yazvenko *et al.,* 2007). A determination of whether foraging disruptions incur fitness consequences would require information on or estimates of the energetic requirements of the affected individuals and the relationship between prey availability, foraging effort and success, and the life history stage of the animal.

Stress responses —An animal's perception of a threat may be sufficient to trigger stress responses consisting of some combination of behavioral responses, autonomic nervous system responses, neuroendocrine responses, or immune responses (*e.g.,* Seyle 1950; Moberg 2000). In many cases, an animal's first and sometimes most economical (in terms of energetic costs) response is behavioral avoidance of the potential stressor. Autonomic nervous system responses to stress typically involve changes in heart rate, blood pressure, and gastrointestinal activity. These responses have a relatively short duration and may or may not have a significant long-term effect on an animal's fitness.

Neuroendocrine stress responses often involve the hypothalamus-pituitary-adrenal system. Virtually all neuroendocrine functions that are affected by stress—including

immune competence, reproduction, metabolism, and behavior—are regulated by pituitary hormones. Stress-induced changes in the secretion of pituitary hormones have been implicated in failed reproduction, altered metabolism, reduced immune competence, and behavioral disturbance (*e.g.,* Moberg 1987; Blecha 2000). Increases in the circulation of glucocorticoids are also equated with stress (Romano *et al.,* 2004).

The primary distinction between stress (which is adaptive and does not normally place an animal at risk) and "distress" is the cost of the response. During a stress response, an animal uses glycogen stores that can be quickly replenished once the stress is alleviated. In such circumstances, the cost of the stress response would not pose serious fitness consequences. However, when an animal does not have sufficient energy reserves to satisfy the energetic costs of a stress response, energy resources must be diverted from other functions. This state of distress will last until the animal replenishes its energetic reserves sufficient to restore normal function.

Relationships between these physiological mechanisms, animal behavior, and the costs of stress responses are well studied through controlled experiments and for both laboratory and free-ranging animals (*e.g.,* Holberton *et al.,* 1996; Hood *et al.,* 1998; Jessop *et al.,* 2003; Krausman *et al.,* 2004; Lankford *et al.,* 2005). Stress responses due to exposure to anthropogenic sounds or other stressors and their effects on marine mammals have also been reviewed (Fair and Becker, 2000; Romano *et al.,* 2002a) and, more rarely, studied in wild populations (*e.g.,* Romano *et al.,* 2002b). For example, Rolland *et al.,* (2012) found that noise reduction from reduced ship traffic in the Bay of Fundy was associated with decreased stress in North Atlantic right whales. These and other studies lead to a reasonable expectation that some marine mammals will experience physiological stress responses upon exposure to acoustic stressors and that it is possible that some of these would be classified as "distress." In addition, any animal experiencing TTS would likely also experience stress responses (NRC 2003), however distress is an

unlikely result of this project based on observations of marine mammals during previous, similar projects in the area.

Masking —Sound can disrupt behavior through masking, or interfering with, an animal's ability to detect, recognize, or discriminate between acoustic signals of interest (*e.g.,* those used for intraspecific communication and social interactions, prey detection, predator avoidance, navigation) (Richardson *et al.,* 1995). Masking occurs when the receipt of a sound is interfered with by another coincident sound at similar frequencies and at similar or higher intensity, and may occur whether the sound is natural (*e.g.,* snapping shrimp, wind, waves, precipitation) or anthropogenic (*e.g.,* pile driving, shipping, sonar, seismic exploration) in origin. The ability of a noise source to mask biologically important sounds depends on the characteristics of both the noise source and the signal of interest (*e.g.,* signal-to-noise ratio, temporal variability, direction), in relation to each other and to an animal's hearing abilities (*e.g.,* sensitivity, frequency range, critical ratios, frequency discrimination, directional discrimination, age or TTS hearing loss), and existing ambient noise and propagation conditions. Masking of natural sounds can result when human activities produce high levels of background sound at frequencies important to marine mammals. Conversely, if the background level of underwater sound is high (*e.g.,* on a day with strong wind and high waves), an anthropogenic sound source would not be detectable as far away as would be possible under quieter conditions and would itself be masked.

Habituation—Habituation can occur when an animal's response to a stimulus wanes with repeated exposure, usually in the absence of unpleasant associated events (Wartzok *et al.,* 2003). Animals are most likely to habituate to sounds that are predictable and unvarying. The opposite process is sensitization, when an unpleasant experience leads to subsequent responses, often in the form of avoidance, at a lower level of exposure. Behavioral state may affect the type of response. For example, animals that are

resting may show greater behavioral change in response to disturbing sound levels than animals that are highly motivated to remain in an area for feeding (Richardson *et al.,* 1995; NRC 2003; Wartzok *et al.,* 2003). Controlled experiments with captive marine mammals have showed pronounced behavioral reactions, including avoidance of loud sound sources (Ridgway *et al.,* 1997; Finneran *et al.,* 2003). Observed responses of wild marine mammals to loud-impulsive sound sources (typically seismic airguns or acoustic harassment devices) have been varied but often consist of avoidance behavior or other behavioral changes suggesting discomfort (Morton and Symonds 2002; see also Richardson *et al.,* 1995; Nowacek *et al.,* 2007). In general, pinnipeds seem more tolerant of, or at least habituate more quickly to, potentially disturbing underwater sound than do cetaceans, and generally seem to be less responsive to exposure to industrial sound than most cetaceans.

Airborne Acoustic Effects from the Proposed Activities—Pinnipeds that occur near the project site could be exposed to airborne sounds associated with pile removal that have the potential to cause behavioral harassment, depending on their distance from construction activities. Cetaceans are not expected to be exposed to airborne sounds that would result in harassment as defined under the MMPA.

Airborne noise will primarily be an issue for pinnipeds that are swimming or hauled out near the project site within the range of noise levels elevated above the acoustic criteria. We recognize that pinnipeds in the water could be exposed to airborne sound that may result in behavioral harassment when looking with heads above water. Most likely, airborne sound would cause behavioral responses similar to those discussed above in relation to underwater sound. However, these animals would previously have been "taken" as a result of exposure to underwater sound above the behavioral harassment thresholds, which are in all cases larger than those associated with airborne sound. Multiple instances of exposure to sound above NMFS' thresholds for behavioral

harassment are not believed to result in increased behavioral disturbance, in either nature or intensity of disturbance reaction. As the behavioral harassment of these animals is already accounted for in these estimates of potential take, effects of airborne noise will not be considered further.

Marine Mammal Habitat Effects

Chevron's construction activities could have localized temporary impacts on marine mammal prey and foraging habitat by increasing in-water sound pressure levels and slightly decreasing water quality. However, construction activities are of relatively short duration and the removal of the creosote treated piles of the Wharf will have a long-term beneficial effect on marine mammal habitat.

Effects on Potential Prey—Sound may affect marine mammals through impacts on the abundance, behavior, or distribution of prey species (*e.g.,* fish). Marine mammal prey varies by species, season, and location. Here, we describe studies regarding the effects of noise on known marine mammal prey.

Fish utilize the soundscape and components of sound in their environment to perform important functions such as foraging, predator avoidance, mating, and spawning (*e.g.,* Zelick *et al.,* 1999; Fay 2009). Depending on their hearing anatomy and peripheral sensory structures, which vary among species, fishes hear sounds using pressure and particle motion sensitivity capabilities and detect the motion of surrounding water (Fay *et al.,* 2008). The potential effects of noise on fishes depends on the overlapping frequency range, distance from the sound source, water depth of exposure, and species-specific hearing sensitivity, anatomy, and physiology. Key impacts to fishes may include behavioral responses, hearing damage, barotrauma (pressure-related injuries), and mortality.

Fish react to sounds which are especially strong and/or intermittent low-frequency sounds, and behavioral responses such as flight or avoidance are the most likely effects.

The reaction of fish to noise depends on the physiological state of the fish, past exposures, motivation (*e.g.,* feeding, spawning, migration), and other environmental factors. Hastings and Popper (2005) identified several studies that suggest fish may relocate to avoid certain areas of sound energy. However, some studies have shown no or slight reaction to impulse sounds (*e.g.,* Pena *et al.,* 2013; Jorgenson and Gyselman, 2009; Cott *et al.,* 2012).

SPLs of sufficient strength have been known to cause injury to fish and fish mortality. However, in most fish species, hair cells in the ear continuously regenerate and loss of auditory function likely is restored when damaged cells are replaced with new cells. Halvorsen *et al.,* (2012a) showed that a TTS of 4-6 dB was recoverable within 24 hours for one species. Impacts would be most severe when the individual fish is close to the source and when the duration of exposure is long. Injury caused by barotrauma can range from slight to severe and can cause death, and is most likely for fish with swim bladders. Barotrauma injuries have been documented during controlled exposure to impact pile driving (Halvorsen *et al.,* 2012b; Casper *et al.,* 2013).

The most likely impact to fish from pile removal activities at the project area would be temporary behavioral avoidance of the area. The duration of fish avoidance of an area after pile removal stops is unknown, but a rapid return to normal recruitment, distribution and behavior is anticipated. In addition, the affected area represents an extremely small portion of the total foraging area available to marine mammals within San Francisco Bay.

Effects on Potential Foraging Habitat— A temporary, small-scale loss of foraging habitat may occur for marine mammals if marine mammals avoid the area during Wharf demolition. Pile removal may temporarily impact foraging habitat by increasing turbidity resulting from suspended sediments. Impacts to benthic invertebrate species would be primarily associated with disturbance of sediments that may cover or

displace some invertebrates. The impacts will be highly localized, and no habitat will be permanently displaced by construction activities. As previously noted, the affected area represents a small portion of the total area within foraging range of marine mammals that may be present. Therefore, it is expected that impacts on foraging opportunities for marine mammals due to the removal of the Point Orient Wharf would be minimal.

Estimated Take

This section provides an estimate of the number of incidental takes proposed for authorization through these IHAs, which will inform both NMFS' consideration of "small numbers" and the negligible impact determination.

Harassment is the only type of take expected to result from these activities. Except with respect to certain activities not pertinent here, section 3(18) of the MMPA defines "harassment" as any act of pursuit, torment, or annoyance, which (i) has the potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment); or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering (Level B harassment).

Authorized takes would primarily be by Level B harassment, as noise generated from in-water pile removal (vibratory) has the potential to result in disruption of behavioral patterns for individual marine mammals. There is also some potential for auditory injury (Level A harassment) to result, primarily for high- and low-frequency species and phocids because predicted auditory injury zones are larger than for mid-frequency species. However, auditory injury is unlikely to occur due to the proposed shutdown zones (see **Proposed Mitigation** section). Additionally, the proposed mitigation and monitoring measures are expected to minimize the severity of the taking to the extent practicable.

As described previously, no mortality is anticipated or proposed to be authorized for this activity. Below we describe how the take is estimated.

Generally speaking, we estimate take by considering: (1) acoustic thresholds above which NMFS believes the best available science indicates marine mammals will be behaviorally harassed or incur some degree of permanent hearing impairment; (2) the area or volume of water that will be ensonified above these levels in a day; (3) the density or occurrence of marine mammals within these ensonified areas; and, (4) the number of days of activities. We note that while these basic factors can contribute to a basic calculation to provide an initial prediction of takes, additional information that can qualitatively inform take estimates is also sometimes available (*e.g.,* previous monitoring results or average group size). Below, we describe the factors considered here in more detail and present the proposed take estimate.

Acoustic Thresholds

NMFS recommends the use of acoustic thresholds that identify the received level of underwater sound above which exposed marine mammals would be reasonably expected to be behaviorally harassed (equated to Level B harassment) or to incur PTS of some degree (equated to Level A harassment). Thresholds have also been developed identifying the received level of in-air sound above which exposed pinnipeds would likely be behaviorally harassed.

Level B Harassment for non-explosive sources – Though significantly driven by received level, the onset of behavioral disturbance from anthropogenic noise exposure is also informed to varying degrees by other factors related to the source (*e.g.*, frequency, predictability, duty cycle), the environment (*e.g.*, bathymetry), and the receiving animals (hearing, motivation, experience, demography, behavioral context) and can be difficult to predict (Southall *et al.,* 2007, Ellison *et al.*, 2012). Based on what the available science indicates and the practical need to use a threshold based on a factor that is both

predictable and measurable for most activities, NMFS uses a generalized acoustic threshold based on received level to estimate the onset of behavioral harassment. NMFS predicts that marine mammals are likely to be behaviorally harassed in a manner we consider Level B harassment when exposed to underwater anthropogenic noise above received levels of 120 dB re 1 micropascal (µPa) root mean square (rms) for continuous (*e.g.,* vibratory pile-driving, drilling) and above 160 dB re 1 µPa (rms) for non-explosive impulsive (*e.g.*, seismic airguns) or intermittent (*e.g.*, scientific sonar) sources.

Chevron's Point Orient Wharf Removal includes the use of continuous non-impulsive (vibratory pile removal) sources, and therefore the 120 dB re 1 µPa (rms) is applicable.

Level A harassment for non-explosive sources - NMFS' Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0) (Technical Guidance, 2018) identifies dual criteria to assess auditory injury (Level A harassment) to five different marine mammal groups (based on hearing sensitivity) as a result of exposure to noise from two different types of sources (impulsive or non-impulsive). Chevron's Point Orient Wharf Removal includes the use of non-impulsive vibratory pile removal.

These thresholds are provided in the table below. The references, analysis, and methodology used in the development of the thresholds are described in NMFS 2018 Technical Guidance, which may be accessed at *https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-acoustic-technical-guidance*.

Table 4. Thresholds Identifying the Onset of Permanent Threshold Shift

	PTS Onset Thresholds* (Received Level)	
Hearing Group	**Impulsive**	**Non-impulsive**
Low-Frequency (LF) Cetaceans	*Cell 1* $L_{p,0\text{-pk,flat}}$: 219 dB $L_{E,p,\ LF,24h}$: 1183 dB	*Cell 2* $L_{E,p,\ LF,24h}$: 199 dB

Mid-Frequency (MF) Cetaceans	*Cell 3* $L_{p,0\text{-pk,flat}}$: 230 dB $L_{E,p,\text{MF,24h}}$: 1185 dB	*Cell 4* $L_{E,p,\text{MF,24h}}$: 198 dB
High-Frequency (HF) Cetaceans	*Cell 5* $L_{p,0\text{-pk,flat}}$: 202 dB $L_{E,p,\text{HF,24h}}$: 155 dB	*Cell 6* $L_{E,p,\text{HF,24h}}$: 173 dB
Phocid Pinnipeds (PW) (Underwater)	*Cell 7* $L_{p,0\text{-pk.flat}}$: 218 dB $L_{E,p,\text{PW,24h}}$: 1185 dB	*Cell 8* $L_{E,p,\text{PW,24h}}$: 201 dB
Otariid Pinnipeds (OW) (Underwater)	*Cell 9* $L_{p,0\text{-pk,flat}}$: 232 dB $L_{E,p,\text{OW,24h}}$: 203 dB	*Cell 10* $L_{E,p,\text{OW,24h}}$: 219 dB

* Dual metric thresholds for impulsive sounds: Use whichever results in the largest isopleth for calculating PTS onset. If a non-impulsive sound has the potential of exceeding the peak sound pressure level thresholds associated with impulsive sounds, these thresholds are recommended for consideration.

Note: Peak sound pressure level ($L_{p,0\text{-pk}}$) has a reference value of 1 µPa, and weighted cumulative sound exposure level ($L_{E,p}$) has a reference value of 1µPa^{2}s. In this Table, thresholds are abbreviated to be more reflective of International Organization for Standardization standards (ISO 2017). The subscript "flat" is being included to indicate peak sound pressure are flat weighted or unweighted within the generalized hearing range of marine mammals (*i.e.*, 7 Hz to 160 kHz). The subscript associated with cumulative sound exposure level thresholds indicates the designated marine mammal auditory weighting function (LF, MF, and HF cetaceans, and PW and OW pinnipeds) and that the recommended accumulation period is 24 hours. The weighted cumulative sound exposure level thresholds could be exceeded in a multitude of ways (*i.e.*, varying exposure levels and durations, duty cycle). When possible, it is valuable for action proponents to indicate the conditions under which these thresholds will be exceeded.

Ensonified Area

Here, we describe operational and environmental parameters of the activity that will feed into identifying the area ensonified above the acoustic thresholds, which include source levels and transmission loss coefficient.

Pile extraction using a vibratory hammer will generate underwater noise that potentially could result in disturbance to marine mammals near the project area. A review of underwater sound measurements for similar projects was conducted to estimate the near-source sound levels for vibratory pile extraction for each pile type. Vibratory pile extraction (and if not available, vibratory driving) sound from similar type and sized piles have been measured from other projects and can be used to estimate the noise levels that this project would generate. This analysis uses the practical spreading loss model, a standard assumption regarding sound propagation for similar environments, to estimate transmission of sound through water. For this analysis, the transmission loss factor of 15 (4.5 dB per doubling of distance) is used. A weighting adjustment factor of 2.5, a

standard default value for vibratory pile driving and removal, was used to calculate Level A harassment areas.

Pile extraction will include the removal of existing 12-inch timber piles during Year 1 and Year 2, and the removal of various sizes of steel piles during Year 2. Approximately 543 timber piles would be removed in Year 1 and 376 timber piles in Year 2. Of the timber piles in Year 1, 133 piles are encased in concrete, however, since the concrete wrapping is only present on the upper portion of the pile, these piles are expected to behave as the unwrapped timber piles in regards to generation of underwater noise. Although some piles may be extracted with direct pulling, this analysis assumes that a vibratory pile driver will be used to remove all piles. Up to 18 of the unwrapped piles or 11 of the wrapped piles could be extracted in one work day, but on most days a co-mingling of the two types would likely be removed. Vibratory extraction time needed for each pile could require approximately 6 minutes for each of the unwrapped piles and 9 minutes for each of the concrete wrapped piles (Table 1). An estimated 35 work days will be spent in Year 1 removing timber piles and approximately 27 work days will be spent removing timber piles in Year 2 (Table 1). The most applicable noise values for timber pile removal from which to base estimates for the proposed project are the values used for the Pier 62/63 pile removal in Seattle, Washington (City of Seattle 2017). During vibratory pile extraction associated with this project, the RMS was estimated to be approximately 152 dB at a distance of 10 meters (City of Seattle, 2017) (Table 5).

In Year 2, 34 36-inch steel piles will be extracted. Each 36-inch steel pipe pile may require approximately 45 minutes of vibratory extraction for removal. Up to two of these piles could be removed in a single work day (Table 1). Chevron is planning a total of 18 work days to remove the 36-inch steel piles (Table 1). Installation of this pile type was hydro-acoustically monitored during the CLWMEP in 2019 (AECOM 2020). As pile installation typically produces more sound than vibratory removal, the sound levels

during vibratory extraction in this project are expected to be equal to or less than the maximum sound levels recorded during that installation. The maximum measured peak sound value was 196 dB measured at 10 meters, and the highest median RMS value recorded was 167 dB measured at 15 meters (AECOM 2020) (Table 5).

Approximately 40 30-inch steel piles would also be removed in Year 2. Each 30-inch steel pipe pile may require approximately 32 minutes of vibratory extraction for removal. Up to three of these piles could be removed in a single work day (Table 1). Chevron has planned approximately 10 work days to remove the 30-inch steel piles (Table 1). Installation of this pile type was hydro-acoustically monitored at the WETA Downtown Ferry Terminal in San Francisco, CA (Caltrans 2020). The sound levels during vibratory extraction are expected to be equal to or less than the maximum sound levels recorded during that installation. The maximum measured peak sound value was 183 dB measured at 7 meters, and the highest median rms value recorded was 156 dB measured at 7 meters (Caltrans 2020) (Table 5).

In Year 2, approximately 16 24-inch steel piles would be removed. Each 24-inch steel pile may require up to 26 minutes of vibration to remove (Table 1). Chevron has planned approximately 6 work days to remove the 24-inch steel piles (Table 1). Installation of this pile type was hydro-acoustically monitored at the WETA Downtown Ferry Terminal in San Francisco, CA (Caltrans 2020). The sound levels during vibratory extraction are expected to be equal to or less than the maximum sound levels recorded during that installation. For the 24-inch piles, the maximum measured peak sound value was 178 dB measured at 15 meters, and the highest median RMS value recorded was 157 dB measured at 15 meters (Caltrans 2020) (Table 5).

Table 5. Source Levels for Vibratory Removal of Piles for Year 1 and Year 2

Year 1		
Pile Type	Diameter (in)	Source Levels/Source Distance (m)

		Peak	RMS
Timber	12	NA	152/10
Year 2			
Pile Type	Diameter (in)	Source Levels/Source Distance (m)	
		Peak	RMS
Timber	12	NA	152/10
Steel	36	196/10	167/15
Steel	30	183/7	156/7
Steel	24	178/15	157/15

The ensonified area associated with Level A harassment is more technically challenging to predict due to the need to account for a duration component. Therefore, NMFS developed an optional User Spreadsheet tool to accompany the Technical Guidance that can be used to relatively simply predict an isopleth distance for use in conjunction with marine mammal density or occurrence to help predict potential takes. We note that because of some of the assumptions included in the methods underlying this optional tool, we anticipate that the resulting isopleth estimates are typically going to be overestimates of some degree, which may result in an overestimate of potential take by Level A harassment. However, this optional tool offers the best way to estimate isopleth distances when more sophisticated modeling methods are not available or practical. For stationary sources (such as vibratory pile removal), the optional User Spreadsheet tool predicts the distance at which, if a marine mammal remained at that distance for the duration of the activity, it would be expected to incur PTS. Inputs used in the User Spreadsheet are reported in Table 1 and source levels used in the spreadsheet are reported in Table 5. The resulting Level A and Level B harassment isopleths as well as area encompassed by the Level B harassment isopleths are reported below in Table 6.

Table 6. Level A and Level B Harassment Isopleths by Pile Type

	Level A isopleths (m)					Level B isopleths (m)	Level B isopleth area (km^2)
Hearing Group	LF Cetaceans	MF Cetaceans	HF Cetaceans	Phocid Pinnipeds	Otariid Pinnipeds		
Pile Type							
Timber	3	1	4	2	1	1,359	3.81
36" steel	34	3	50	21	2	20,390	26.93
30" steel	3	1	5	2	1	1,758	0.93
24" steel	8	1	12	5	1	4,393	5.14

The maximum distance to the Level A harassment threshold during construction would be during the vibratory removal of the 36 inch steel piles during Year 2 (34 m for gray whales, 3 m for bottlenose dolphins, 50 m for harbor porpoises, 21 m for harbor seals, and 2 m for sea lions). The largest Level B harassment zone extends out to 20,390 m for extraction of the 36 inch steel piles. Area was calculated for each Level B harassment isopleth through a GIS exercise and incorporated into take calculations for California sea lions and harbor porpoises (see below).

Marine Mammal Occurrence and Take Estimation and Calculation

In this section we provide the information about the presence, density, or group dynamics of marine mammals that will inform the take calculations. We will also

describe how this information is brought together to produce a quantitative take estimate for each species.

Harbor Seals

Limited at-sea densities are available for Pacific harbor seals in San Francisco Bay. To estimate the number of harbor seals potentially exposed to Level B harassment, take estimates were developed based upon annual surveys of haul outs in San Francisco Bay conducted by the National Park Service (NPS) (Codde and Allen 2013, 2015, 2017, 2020; Codde 2020). Harbor seals spend more time hauled out and enter the water later in the evening during molting season (NPS 2014). The molting season occurs from June-July and overlaps with the construction period of June – November, therefore, haul out counts may provide accurate estimates of harbor seals in the area during that time. Due to the close proximity of Castro Rocks to the project area, haul out occupancy of Castro Rocks was selected to determine take estimates. Calculations of take estimates were based upon the highest mean value of harbor seals observed at Castro Rocks during the molting season in any recent NPS annual survey. The highest mean number of harbor seals was recorded in 2019 as 237 seals (Table 7).

Based upon radio and telemetry data in San Francisco Bay, it is expected that harbor seals concentrate within 10 m of Castro Rocks in all directions while foraging (Grigg *et al.,* 2012). Due to the close proximity of the project area to Castro Rocks, it is expected that all seals assumed to be present (237) on a given day would enter the Level B harassment zone during steel pile extraction and half of the seals (119) would enter the Level B harassment zone during timber pile extraction. Chevron is requesting authorization of a total of 4,165 takes of harbor seals by Level B harassment across the 35 planned work days in Year 1 (Table 8). In Year 2, Chevron is requesting authorization of a total of 11,271 takes of harbor seals by Level B harassment across the 61 planned work days (Table 9).

Chevron plans to implement shutdown zones based upon the distances to the Level A threshold for each hearing group (Table 6). Therefore, takes of harbor seals by Level A harassment were not requested, nor are takes by Level A harassment proposed for authorization by NMFS.

California Sea Lions

Although there are no haul out sites for California sea lions in close proximity to the Wharf, sea lions have consistently been sighted in San Francisco Bay while monitoring during past construction projects (AECOM 2019, 2020; Caltrans 2017). During a long-term monitoring effort for the demolition and reuse of the original east span of the San Francisco-Oakland Bay Bridge in the central Bay, 83 California sea lions were observed in the vicinity of the bridge over a 17-year period (2000 to 2017) (Caltrans 2017). In order to calculate the estimated at-sea density of sea lions, the number of sea lions observed over the 17 year period (83 animals) was divided by the number of monitoring days (257 days) to find the number of sea lions observed per day. The total number of sea lions observed per day was then divided by the area of the monitoring zone (2 km^2) to derive an estimated at-sea density of 0.16 animals per square kilometer (Caltrans 2017) (Table 7). In order to calculate a daily take estimate for the current Wharf removal project, sea lion density was multiplied by the area of the Level B harassment zone for each pile type (Tables 6). The daily take estimate was then multiplied by the number of work days for that pile type to receive a total take estimate per year (Tables 1, 8, 9). Chevron is requesting authorization of a total of 22 takes of California sea lions by Level B harassment in Year 1, and a total of 542 takes of California sea lions by Level B harassment in Year 2 (Tables 8, 9).

Level A harassment takes of California sea lions were not requested by Chevron, nor with they be authorized by NMFS. As Chevron plans to implement a shutdown zone

for all Level A harassment isopleths for each hearing group, Level A harassment takes are not expected.

Harbor Porpoise

The harbor porpoise population has been growing over time in San Francisco Bay (Stern *et al.,* 2017). Although commonly sighted in the vicinity of Angel Island and the Golden Gate, approximately 6 and 12 kilometers (3.7 and 7.5 miles, respectively) southwest of the Wharf, individuals may use other areas of central San Francisco Bay (Keener 2011), as well as the project area.

As in the case of California sea lions, density estimates temporally and spatially aligned with the project work period were available for harbor porpoises based upon long term monitoring for the demolition and reuse of the original east span of the San Francisco-Oakland Bay Bridge in the central Bay (Caltrans 2017). During the 257 days of monitoring from 2000-2017, approximately 24 harbor porpoises were observed in the bridge vicinity. The total number of harbor porpoises observed per day was calculated by dividing the total number of harbor porpoises observed by the number of monitoring days. This estimate per day was then divided by the area of the monitoring zone for harbor porpoises (15 km^2) to calculate an at-sea density of harbor porpoises (0.17 harbor porpoises/square kilometer). In order to calculate a daily take estimate for the current Wharf removal project, the density of harbor porpoises (0.17) was multiplied by the area of the Level B harassment zone for each pile type (Table 6). To calculate a total take estimate of harbor porpoises per year, the daily estimate was multiplied by the number of anticipated work days for each pile type (Tables 1, 8, 9). Chevron is requesting authorization of a total of 23 takes of harbor porpoises by Level B harassment in Year 1 (Table 8), and a total of 576 takes of harbor porpoises by Level B harassment in Year 2 (Table 9).

Takes of harbor porpoises by Level A harassment are not expected as Chevron plans to shut down construction activities within the Level A harassment zones for all pile types and hearing groups. NMFS does not propose to authorize Level A harassment takes of harbor porpoises, nor have Level A harassment takes been requested.

Bottlenose Dolphin

Bottlenose dolphins in San Francisco Bay are typically observed west of Treasure Island, near the Golden Gate at the mouth of the Bay, and along the nearshore areas of San Francisco south to Redwood City (Bay Nature Institute 2014; NMFS 2017). The numbers of dolphins in San Francisco Bay have been increasing over the years (Perlman 2017; Szczepaniak *et al.,* 2013). Although dolphins may occur in the Bay year-round, density estimates are limited. Beginning in 2015, two individuals have been observed frequently in the vicinity of Alameda (APER 2019; Perlman 2017). The average reported group size for bottlenose dolphins in this area is five. Assuming a group of five dolphins comes into San Francisco Bay on two week intervals and vibratory pile extraction occurs over 6 two-week periods, 30 bottlenose dolphin takes would be expected if the group enters the area over which the Level B harassment thresholds may be exceeded (Tables 8, 9). Chevron is requesting authorization of 30 takes of bottlenose dolphins by Level B harassment per year (Tables 8, 9).

Takes of bottlenose dolphins by Level A harassment are not anticipated as Chevron plans to implement a shutdown zone for all Level A harassment isopleths. Takes of bottlenose dolphins by Level A harassment were not requested by Chevron nor will they be authorized by NMFS.

Gray Whale

Gray whales are most often sighted in San Francisco Bay during February and March, however, Wharf removal is not planned to occur during this time. Prior monitoring reports for similar projects occurring during the same work windows did not

document gray whales in the area (AECOM 2019, 2020). Limited sightings of gray whales in the Bay include strandings, (Bartlett 2022; TMMC 2019), monitoring during work on the RSRB (Winning 2008), and whale watch reports (Bartlett 2022). At-sea densities and regular observational data for gray whales in San Francisco Bay during the planned project time are not available. Therefore, take estimates are based upon the potential for one pair of gray whales to be present in the project area each year. In the event that gray whales are in the project area during the time of construction activities, Chevron is requesting authorization for two gray whale takes by Level B harassment per year (Tables 8, 9).

Takes of gray whales by Level A harassment are not anticipated as Chevron plans to shut down construction activities within the Level A harassment zones for all pile types and hearing groups. NMFS does not plan to authorize any takes by Level A harassment of gray whales, nor have any takes by Level A harassment been requested.

Northern Elephant Seal

Small numbers of elephant seals may haul out or strand within central San Francisco Bay (Caltrans 2015; Hernández 2020). Previous monitoring, however, has shown northern elephant seal densities to be very low in the area and out of season for the proposed Wharf removal project. Additionally, northern elephant seals were not observed during pile driving monitoring for the CLWMEP from 2018-2020, which was located just south of the proposed project area. However, as northern elephant seals have been sighted in the Bay, and on assumption that an elephant seal enters the Level B harassment zone once every three days during pile extraction, Chevron is requesting authorization of a total of 12 takes of elephant seals by Level B harassment during Year 1 and 21 takes of elephant seals by Level B harassment during Year 2 (Tables 8, 9).

Takes of elephant seals by Level A harassment are not anticipated as Chevron plans to implement a shutdown zone for all Level A harassment isopleths. Takes of

elephant seals by Level A harassment were not requested by Chevron nor will they be authorized by NMFS.

Northern Fur Seal

The presence of northern fur seals in San Francisco Bay depends upon oceanic conditions, as more fur seals are likely to strand during El Niño events (TMMC 2016). Equatorial sea surface temperatures of the Pacific Ocean have been below average across most of the Pacific, and La Niña conditions are likely to remain for most of spring 2022. During summer 2022, La Niña conditions are expected to remain or transition into neutral El Niño conditions (NOAA 2022). Since there are no estimated at-sea densities for this species in San Francisco Bay, Chevron conservatively requested authorization for, and NMFS proposes to authorize, 10 takes of fur seals per year by Level B harassment (Tables 8, 9).

Takes of northern fur seals by Level A harassment are not anticipated as Chevron plans to shut down construction activities within the Level A harassment zones for all pile types and hearing groups. NMFS does not plan to authorize takes of northern fur seals by Level A harassment, nor have takes by Level A harassment been requested.

Table 7. Estimated marine mammal densities and occurrences

Species	Stock	Estimated Density/ Occurrence	References
Harbor Seals	California	237 per day in June-July (molt season)	(Codde and Allen 2013, 2015, 2017, 2020; Codde 2020)
California Sea Lions	U.S.	0.16 animals/km^2	(Caltrans 2017)

Harbor Porpoise	SF-Russian River	0.17 animals/km^2	(Caltrans 2017)
Bottlenose Dolphin	CA Coastal	Average group size of 5 present in the Bay in two week intervals	(APER 2019; Perlman 2017)
Gray Whale	Eastern N Pacific	Rare; 2 whales per year	(TMMC 2019; Winning 2008)
Northern Elephant Seal	CA Breeding	Rare; once every 3 days	(Caltrans 2015; Hernández 2020)
Northern Fur Seal	California	Rare; 10 seals per year	(TMMC 2016)

Table 8. Proposed Authorized Amount of Marine Mammal Level B Takes by Species and Stock, and Percent of Takes by Stock Year 1

Species	Stock	Pile Type/Size	Requested Total Take	Percent of Stock
Harbor Seals	California*	timber 12"	4165*	13.4*
California Sea Lions	U.S.	timber 12"	22	<0.01
Harbor Porpoise	San Francisco-Russian River	timber 12"	23	0.3
Bottlenose Dolphin	CA Coastal	timber 12"	30	6.6
Gray Whale	Eastern North Pacific	timber 12"	2	<0.01
Northern Elephant Seal	California Breeding	timber 12"	12	<0.01
Northern Fur Seal	California	timber 12"	10	0.07

** Assumes multiple repeated takes of the same individuals from a small portion of the stock. Please see the small numbers section for additional information.*
Abundance estimates are taken from the 2020 U.S. Pacific Marine Mammal Stock Assessments (Carretta et al., 2021)

Table 9. Proposed Authorized Amount of Marine Mammal Level B Takes by Species and Stock, and Percent of Takes by Stock Year 2

Species	Stock	Pile Type/Size	Requested Total Take	percent of Stock
Harbor Seals	California *	timber 12"	3213	
		steel 36"	4266	
		steel 30"	2370	
		steel 24"	1422	
Total			11271*	36.4*
California Sea Lions	U.S.	timber 12"	17	
		steel 36"	485	
		steel 30"	9	
		steel 24"	31	
Total			542	1.3
Harbor Porpoise	San Francisco-Russian River	timber 12"	18	
		steel 36"	515	
		steel 30"	10	
		steel 24"	33	
Total			576	7.4
Bottlenose Dolphin	California Coastal		30	6.6
Gray Whale	Eastern North Pacific		2	<0.01
Northern Elephant Seal	California Breeding		21	0.01
Northern Fur Seal	California		10	0.07

** Assumes multiple repeated takes of the same individuals from a small portion of the stock. Please see the small numbers section for additional information.*
Abundance estimates are taken from the 2020 U.S. Pacific Marine Mammal Stock Assessments (Carretta et al., 2021)

Proposed Mitigation

In order to issue an IHA under section 101(a)(5)(D) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to the activity, and other means of effecting the least practicable impact on the species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance. NMFS regulations require applicants for incidental take authorizations to include information about the availability and feasibility (economic and technological) of equipment, methods, and manner of conducting the activity or other means of effecting the least

practicable adverse impact upon the affected species or stocks and their habitat (50 CFR 216.104(a)(11)).

In evaluating how mitigation may or may not be appropriate to ensure the least practicable adverse impact on species or stocks and their habitat, as well as subsistence uses where applicable, we carefully consider two primary factors:

(1) The manner in which, and the degree to which, the successful implementation of the measure(s) is expected to reduce impacts to marine mammals, marine mammal species or stocks, and their habitat. This considers the nature of the potential adverse impact being mitigated (likelihood, scope, range). It further considers the likelihood that the measure will be effective if implemented (probability of accomplishing the mitigating result if implemented as planned), the likelihood of effective implementation (probability implemented as planned), and;

(2) The practicability of the measures for applicant implementation, which may consider such things as cost, impact on operations, and, in the case of a military readiness activity, personnel safety, practicality of implementation, and impact on the effectiveness of the military readiness activity.

Mitigation for Marine Mammals and their Habitat

The following mitigation measures are proposed for Chevron's removal of the Point Orient Wharf:

- *Time restriction*: For all in-water pile removal activities, Chevron shall operate only when the shutdown zone is visible and visual monitoring of marine mammals can be conducted;
- *Establishment of shutdown zones*: As proposed by Chevron, shutdown zones will be established for each pile type to include the Level A harassment zone for each hearing group. The Level A harassment zone encompasses all of the area where underwater sound pressure levels are expected to reach or exceed the cumulative

SEL thresholds for Level A harassment (Table 6), and will be no less than 10 m. The radii of the shutdown zones are rounded to the next largest 5 m interval if the value is greater than 10 m; and

- *PSOs*: Trained PSOs will conduct visual monitoring from clear, elevated vantage points, along the shoreline or construction barges, where the entirety of the shutdown zones can be observed. PSOs will monitor the shutdown zones for 30 minutes prior to any pile extraction activity to be sure marine mammals are not in the zones. Pile extraction will not commence until marine mammals have not been sighted within the shutdown zone for 30 minutes. If a marine mammal is observed entering a shutdown zone during pile extraction, construction activities will stop until the marine mammal leaves the zone, and will not resume until no marine mammals are observed in the shutdown zone for 30 minutes. If a marine mammal is seen above water and dives below, a 15 minute wait period will begin. If the marine mammal is not redetected in that time, it will be assumed that the marine mammal has moved beyond the shutdown zone, and construction activities will continue.

Based on our evaluation of the applicant's proposed measures, NMFS has preliminarily determined that the proposed mitigation measures provide the means of effecting the least practicable impact on the affected species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance.

Proposed Monitoring and Reporting

In order to issue an IHA for an activity, section 101(a)(5)(D) of the MMPA states that NMFS must set forth requirements pertaining to the monitoring and reporting of such taking. The MMPA implementing regulations at 50 CFR 216.104 (a)(13) indicate that requests for authorizations must include the suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species

and of the level of taking or impacts on populations of marine mammals that are expected to be present in the proposed action area. Effective reporting is critical both to compliance as well as ensuring that the most value is obtained from the required monitoring.

Monitoring and reporting requirements prescribed by NMFS should contribute to improved understanding of one or more of the following:

- Occurrence of marine mammal species or stocks in the area in which take is anticipated (*e.g.*, presence, abundance, distribution, density).
- Nature, scope, or context of likely marine mammal exposure to potential stressors/impacts (individual or cumulative, acute or chronic), through better understanding of: (1) action or environment (*e.g.*, source characterization, propagation, ambient noise); (2) affected species (*e.g.*, life history, dive patterns); (3) co-occurrence of marine mammal species with the action; or (4) biological or behavioral context of exposure (*e.g.*, age, calving or feeding areas).
- Individual marine mammal responses (behavioral or physiological) to acoustic stressors (acute, chronic, or cumulative), other stressors, or cumulative impacts from multiple stressors.
- How anticipated responses to stressors impact either: (1) long-term fitness and survival of individual marine mammals; or (2) populations, species, or stocks.
- Effects on marine mammal habitat (*e.g.*, marine mammal prey species, acoustic habitat, or other important physical components of marine mammal habitat).
- Mitigation and monitoring effectiveness.

Chevron will monitor to collect sighting data and record behavioral responses to construction activities for all marine mammal species observed in the project location during the period of activity. The monitoring zone will include all shutdown zones and areas where underwater sound pressure levels are expected to reach or exceed the

thresholds for Level B harassment. Monitoring will be conducted by qualified protected species observers (PSOs), trained biologists familiar with marine mammal species and their behavior.

Chevron will monitor the shutdown zones and monitoring zones before, during, and after pile removal activities with at least two PSOs located at the best practicable vantage points. Based upon our requirements, the Marine Mammal Monitoring Plan would implement the following procedures for pile removal:

- PSOs must be independent observers (*i.e.* not construction personnel). All PSOs must have the ability to conduct field observations and collect data according to assigned protocols, be experienced in field identification of marine mammals and their behaviors, and submit their resumes to NMFS for approval;
- Biological monitoring will occur within one week of the project's start date to establish baseline observation;
- Observation periods will encompass different tide levels at different hours of the day;
- Monitoring will occur from elevated locations along the shoreline or on barges where the entire shutdown zones and monitoring zones are visible. If visibility decreases, such as due to fog or weather, vibratory pile extraction would be stopped until PSOs are able to view the entire shutdown zone;
- PSOs will be equipped with high quality binoculars for monitoring and radios or cells phones for maintaining contact with work crews;
- PSOs will implement clearing of the shutdown and monitoring zones as well as shutdown procedures; and
- At the end of the pile removal day, post-construction monitoring will be conducted for 30 minutes beyond the cessation of pile removal.

Data Collection

Chevron will record detailed information about implementation of shutdowns, counts and behaviors (if possible) of all marine mammal species observed, times of observations, construction activities that occurred, any acoustic and visual disturbances, and weather conditions. PSOs will use approved data forms to record the following information:

- Date and time that permitted construction activity begins and ends;
- Type of pile removal activities that take place;
- Weather parameters (*e.g.,* percent cloud cover, percent glare, visibility, air temperature, tide level, Beaufort sea state);
- Species counts, and, if possible, sex and age classes of any observed marine mammal species;
- Marine mammal behavior patterns, including bearing and direction of travel;
- Any observed behavioral reactions just prior to, during, or after construction activities;
- Location of marine mammal, distance from observer to the marine mammal, and distance from pile removal activities to marine mammals;
- Record of whether an observation required the implementation of mitigation measures, including shutdown procedures and the duration of each shutdown; and
- Any acoustic or visual disturbances that take place.

Reporting Measures

Chevron shall submit a draft report to NMFS within 90 days of the completion of marine mammal monitoring, or 60 days prior to the issuance of any subsequent IHA for this project (if required), whichever comes first. The annual report would detail the monitoring protocol, summarize the data recorded during monitoring, and estimate the number of marine mammals that may have been harassed. If no comments are received from NMFS within 30 days, the draft final report will become final. If comments are

received, a final report must be submitted up to 30 days after receipt of comments. All PSO datasheets and/or raw sighting data must be submitted with the draft marine mammal report.

Reports shall contain the following information:

- Dates and times (begin and end) of all marine mammal monitoring.
- Construction activities occurring during each daily observation period including: (a) How many and what type of piles were removed; and (b) the total duration of time for removal of each pile;
- PSO locations during monitoring; and
- Environmental conditions during monitoring periods (at beginning and end of PSO shift and whenever conditions change significantly), including Beaufort sea state and any other relevant weather conditions including cloud cover, fog, sun glare, and overall visibility to the horizon, and estimated observable distance.

Upon observation of a marine mammal, the following information must be reported:

- Name of PSO who sighted the animal(s) and PSO location and activity at time of sighting;
- Time of sighting;
- Identification of the animal (s) (*e.g.,* genus/species, lowest possible taxonomic level, or unidentified), PSO confidence in identification, and the composition of the group if there is a mix of species;
- Distance and location of each observed marine mammal relative to pile removal for each sighting;
- Estimated number of animals by species (min/max/best estimate);

- Estimated number of animals by cohort (adults, juveniles, neonates, group composition, etc.);
- Description of any marine mammal behavioral observations (*e.g.,* observed behaviors such as feeding or traveling), including an assessment of behavioral responses thought to have resulted from the activity (*e.g.,* no response or changes in behavioral state such as ceasing feeding, changing direction, flushing, or breaching); and
- Detailed information about implementation of any mitigation (*e.g.,* shutdowns and delays), a description of specified actions that ensured, and resulting changes in behavior of the animal(s), if any.

In the unanticipated event that the specified activity clearly causes the take of a marine mammal in a manner prohibited by the IHA (if issued), such as an injury (Level A harassment), serious injury or mortality (*e.g.,* ship-strike, gear interaction, and/or entanglement), Chevron would immediately cease the specified activities and immediately report the incident to the Office of Protected Resources (*PR.ITP.MonitoringReports@noaa.gov*) and the West Coast Regional Stranding Coordinator. The report would include the following information:

- Time, date, and location (latitude/longitude) of the incident;
- Name and type of vessel involved (if applicable);
- Vessel's speed during and leading up to the incident (if applicable);
- Description of the incident;
- Status of all sound source used in the 24 hours preceding the incident;
- Water depth;
- Environmental conditions (*e.g.,* wind speed and direction, Beaufort sea state, cloud cover, and visibility);

- Description of all marine mammal observations in the 24 hours preceding the incident;
- Species identification or description of the animal(s) involved;
- Fate of the animal(s); and
- Photographs or video footage of the animal(s) (if equipment is available).

Activities would not resume until NMFS is able to review the circumstances of the prohibited take. NMFS would work with Chevron to determine necessary actions to minimize the likelihood of further prohibited take and ensure MMPA compliance. Chevron would not be able to resume their activities until notified by NMFS via letter, email, or telephone.

In the event that Chevron discovers an injured or dead marine mammal, and the lead PSO determines that the cause of the injury or death is unknown and the death is relatively recent (*i.e.,* in less than a moderate state of decomposition as described in the next paragraph), Chevron would immediately report the incident to the Office of Protected Resources, NMFS, and the West Coast Regional Stranding Coordinator. The report would include the same information identified in the section above. Activities would be able to continue while NMFS reviews the circumstances of the incident. NMFS would work with Chevron to determine whether modifications in the activities are appropriate.

In the event that Chevron discovers an injured or dead marine mammal, and the lead PSO determines that the injury or death is not associated with or related to the activities authorized in the IHA (*e.g.,* previously wounded animal, carcass with moderate to advanced decomposition, or scavenger damage), Chevron would report the incident to Office of Protected Resources, NMFS, and West Coast Regional Stranding Coordinator, within 24 hours of the discovery. Chevron would provide photographs or video footage (if available) or other documentation of the stranded animal sighting to NMFS and the

Marine Mammal Stranding Network. Pile removal activities would be permitted to continue.

Negligible Impact Analysis and Determination

NMFS has defined negligible impact as an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival (50 CFR 216.103). A negligible impact finding is based on the lack of likely adverse effects on annual rates of recruitment or survival (*i.e.*, population-level effects). An estimate of the number of takes alone is not enough information on which to base an impact determination. In addition to considering estimates of the number of marine mammals that might be "taken" through harassment, NMFS considers other factors, such as the likely nature of any impacts or responses (*e.g.*, intensity, duration), the context of any impacts or responses (*e.g.*, critical reproductive time or location, foraging impacts affecting energetics), as well as effects on habitat, and the likely effectiveness of the mitigation. We also assess the number, intensity, and context of estimated takes by evaluating this information relative to population status. Consistent with the 1989 preamble for NMFS' implementing regulations (54 FR 40338; September 29, 1989), the impacts from other past and ongoing anthropogenic activities are incorporated into this analysis via their impacts on the baseline (*e.g.*, as reflected in the regulatory status of the species, population size and growth rate where known, ongoing sources of human-caused mortality, or ambient noise levels).

To avoid repetition, the discussion of our analysis applies to all the species listed in Table 1, given that the anticipated effects of this activity on these different marine mammal stocks are expected to be similar. There is little information about the nature or severity of the impacts, or the size, status, or structure of any of these species or stocks that would lead to a different analysis for this activity.

Pile removal activities have the potential to disturb or displace marine mammals. The proposed project activities may result in take in the form of Level B harassment from underwater sounds generated by vibratory pile removal. Potential takes could occur if individuals move into in the ensonified area when construction activities are underway.

The takes from Level B harassment would be due to potential behavioral disturbance. No serious injury or mortality is anticipated for any stocks presented in this analysis given the nature of the activity and mitigation measures designed to minimize the possibility of injury. The potential for harassment is minimized through construction method and the implementation of planned mitigation strategies (see **Proposed Mitigation** section).

No marine mammal stocks for which incidental take authorization is proposed are listed as threatened or endangered under the ESA or determined to be strategic or depleted under the MMPA. The relatively low marine mammal density, small shutdown zones, and proposed monitoring also make injury takes of marine mammals unlikely. The shutdown zones would be thoroughly monitored before the proposed vibratory pile removal begins and construction activities would be postponed if a marine mammal is sighted within the shutdown zone. There is a high likelihood that marine mammals would be detected by trained observers under environmental conditions described for the proposed project. Limiting construction activities to daylight hours will also increase detectability of marine mammal in the area. Therefore, the proposed mitigation and monitoring measures are expected to eliminate the potential for injury and Level A harassment as well as reduce the amount and intensity for Level B behavioral harassment. Furthermore, the pile removal activities analyzed here are similar to, or less impactful than, numerous construction activities conducted in other similar locations which have occurred with no reported injuries or mortality to marine mammals, and no known long-term adverse consequences from behavioral harassment.

Anticipated and authorized takes are expected to be limited to short-term Level B harassment (behavioral disturbance) as construction activities will occur over the course of 12 weeks and removal of each pile lasts only approximately 6-45 minutes. Effects on individuals taken by Level B harassment, based upon reports in the literature as well as monitoring from other similar activities, may include increased swimming speeds, increased surfacing time, or decreased foraging (*e.g.,* Thorson and Reyff 2006). Individual animals, even if taken multiple times, will likely move away from the sound source and be temporarily displaced from the area due to elevated noise level during pile removal. Marine mammals could also experience TTS if they move into the Level B monitoring zone. TTS is a temporary loss of hearing sensitivity when exposed to loud sound, and the hearing threshold is expected to recover completely within minutes to hours. Thus, it is not considered an injury. While TTS could occur, it is not considered a likely outcome of this activity. Repeated exposures of individuals to levels of sounds that could cause Level B harassment are unlikely to considerably significantly disrupt foraging behavior or result in significant decrease in fitness, reproduction, or survival for the affected individuals. In all, there would be no adverse impacts to the stock as a whole.

As previously described, a UME has been declared for Eastern Pacific gray whales. However, we do not expected proposed takes for authorization in this action to exacerbate the ongoing UME. As mentioned previously, no injury or mortality is proposed for authorization, and Level B harassment takes of gray whales will be reduced to the level of least practicable adverse impact through incorporation of the proposed mitigation measures. Given that only 2 takes by Level B harassment are proposed for this stock annually, we do not expect the proposed take authorization to compound the ongoing UME.

The proposed project is not expected to have significant adverse effects on marine mammal habitat. There are no Biologically Important Areas or ESA-designated habitat

within the project area. While EFH for several fish species does exist in the proposed project area, the proposed activities would not permanently modify existing marine mammal habitat. The activities may cause fish to leave the area temporarily. This could impact marine mammals' foraging opportunities in a limited portion of the foraging range, however, due to the short duration of activities and the relatively small area of affected habitat, the impacts to marine mammal habitat are not expected to cause significant or long-term negative consequences.

In summary and as described above, the following factors primarily support our preliminary determination that the impacts resulting from this activity are not expected to adversely affect the species or stock through effects on annual rates of recruitment or survival:

- No mortality is anticipated or authorized;
- No Level A harassment, including injury or serious injury, is anticipated or authorized;
- Anticipated impacts of Level B harassment include temporary behavior modifications;
- Short duration and intermittent nature of in-water construction activities;
- The specified activity and associated ensonified areas are very small relative to the overall habitat ranges of all species and do not include habitat areas of special significance (Biologically Important Areas or ESA-designated critical habitat);
- The lack of anticipated significant or long-term effects to marine mammal habitat;
- The presumed efficacy of the mitigation measures in reducing the effects of the specified activity;

- Monitoring reports from similar work in San Francisco Bay have documented little to no effect on individuals of the same species impacted by the specified activities.

These factors, in addition to the available body of evidence from prior similar activities, demonstrate that the potential effects of the specified activity will have only short-term effects on individuals. The specified activity is not expected to impact rates of recruitment or survival, and will therefore not result in population-level impacts.

Based on the analysis contained herein of the likely effects of the specified activity on marine mammals and their habitat, and taking into consideration the implementation of the proposed monitoring and mitigation measures, NMFS preliminarily finds, specific to both the Year 1 and Year 2 proposed IHAs, that the total marine mammal take from the proposed activity will have a negligible impact on all affected marine mammal species or stocks.

Small Numbers

As noted above, only small numbers of incidental take may be authorized under sections 101(a)(5)(A) and (D) of the MMPA for specified activities other than military readiness activities. The MMPA does not define small numbers and so, in practice, where estimated numbers are available, NMFS compares the number of individuals taken to the most appropriate estimation of abundance of the relevant species or stock in our determination of whether an authorization is limited to small numbers of marine mammals. When the predicted number of individuals to be taken is fewer than one third of the species or stock abundance, the take is considered to be of small numbers. Additionally, other qualitative factors may be considered in the analysis, such as the temporal or spatial scale of the activities.

The amount of take NMFS proposes to authorize in Year 1 is below one-third of the estimated stock abundance for all impacted stocks (Table 8). The number of animals

authorized to be taken during Year 1 would be considered small relative to the relevant stocks or populations, even if each estimated take occurred to a new individual. Furthermore, these takes are likely to only occur within a small portion of the overall regional stock and the likelihood that each take would occur to a new individual is low.

The amount of take NMFS proposes to authorize in Year 2 is below one-third of the estimated stock abundance for California sea lions, harbor porpoises, bottlenose dolphins, gray whales, northern elephant seals, and northern fur seals (Table 9). The take percentage of the estimated stock of harbor seals is approximately 36.4 percent, however, take estimates are likely conservative as they assume all takes are of different individuals which is likely not the case. Some individuals may return to the area multiple times a week, but PSOs would count them as separate takes if they are not individually identified. Therefore, since take estimates likely include repeated takes of the same individuals over time, take estimates are expected to represent a smaller percentage of the total stock. Furthermore, the project area represents a small portion of the overall range of harbor seals and activities are will most likely to impact only a small portion of the stock.

Based on the analysis contained herein of the proposed activity (including the proposed mitigation and monitoring measures) and the anticipated take of marine mammals, NMFS preliminarily finds, specific to both the Year 1 and Year 2 proposed IHAs that small numbers of marine mammals will be taken relative to the population size of the affected species or stocks.

Unmitigable Adverse Impact Analysis and Determination

There are no relevant subsistence uses of the affected marine mammal stocks or species implicated by this action. Therefore, NMFS has determined that the total taking of affected species or stocks would not have an unmitigable adverse impact on the availability of such species or stocks for taking for subsistence purposes.

Endangered Species Act

Section 7(a)(2) of the Endangered Species Act of 1973 (ESA: 16 U.S.C. 1531 *et seq*.) requires that each Federal agency insure that any action it authorizes, funds, or carries out is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of designated critical habitat. To ensure ESA compliance for the issuance of IHAs, NMFS consults internally whenever we propose to authorize take for endangered or threatened species.

No incidental take of ESA-listed species is proposed for authorization or expected to result from this activity. Therefore, NMFS has determined that formal consultation under section 7 of the ESA is not required for this action.

Proposed Authorization

As a result of these preliminary determinations, NMFS proposes to issue two consecutive IHAs to Chevron for conducting the Point Orient Wharf Removal in San Francisco Bay, CA from June 1- November 30, 2022 and June 1- November 30, 2023, provided the previously mentioned mitigation, monitoring, and reporting requirements are incorporated. Drafts of the proposed IHAs can be found at *https://www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act*.

Request for Public Comments

We request comment on our analyses, the proposed authorizations, and any other aspect of this notice of proposed IHAs for the proposed Point Orient Wharf Removal. We also request at this time comment on the potential renewal of this proposed IHAs as described in the paragraph below. Please include with your comments any supporting data or literature citations to help inform decisions on the request for these IHAs or subsequent Renewal IHAs.

On a case-by-case basis, NMFS may issue a one-time, one-year Renewal IHA following notice to the public providing an additional 15 days for public comments when

(1) up to another year of identical or nearly identical activities as described in the **Description of Proposed Activities** section of this notice is planned or (2) the activities as described in the **Description of Proposed Activities** section of this notice would not be completed by the time the IHA expires and a renewal would allow for completion of the activities beyond that described in the *Dates and Duration* section of this notice, provided all of the following conditions are met:

- A request for renewal is received no later than 60 days prior to the needed Renewal IHA effective date (recognizing that the Renewal IHA expiration date cannot extend beyond 1 year from expiration of the initial IHA).
- The request for renewal must include the following:

(1) An explanation that the activities to be conducted under the requested Renewal IHA are identical to the activities analyzed under the initial IHA, are a subset of the activities, or include changes so minor (*e.g.*, reduction in pile size) that the changes do not affect the previous analyses, mitigation and monitoring requirements, or take estimates (with the exception of reducing the type or amount of take).

(2) A preliminary monitoring report showing the results of the required monitoring to date and an explanation showing that the monitoring results do not indicate impacts of a scale or nature not previously analyzed or authorized.

Upon review of the request for renewal, the status of the affected species or stocks, and any other pertinent information, NMFS determines that there are no more than minor changes in the activities, the mitigation and monitoring measures will remain the same and appropriate, and the findings in the initial IHA remain valid.

Dated: April 21, 2022.

Catherine Marzin,

Deputy Director, Office of Protected Resources,

National Marine Fisheries Service.

[FR Doc. 2022-08888 Filed: 4/26/2022 8:45 am; Publication Date: 4/27/2022]